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CLASSIFICATION OF SYSTEMS

DEPTH CLASSIFICATION, 28

S. R. RANGANATHAN

Points out that "System" is now left undefined. Indicates how the Spiral of Scientific Method may be used to define a system with the aid of the concept of Fundamental Laws. Traces the progressive cluttering of connecting symbols. Points out the versatility of a Mixed Notation and of Telescoping. Isolates some unsolved problems in the Idea Plane and states that the solutions for them could only be found by the further pursuit of the discipline of the Philosophy of Science. Shows how the hitherto unsolved problems of Branch Systems can now be solved with the aid of Zone Analysis and thereby the Canons for Filiatory Sequence can be satisfied.

CONTRACTION USED

(BC)	Basic Class
(BSmF)	Branch-System Facet
(CC)	Colon Classification
(DC)	Decimal Classification
(MC)	Main Class
(SmF)	System Facet
(UDC)	Universal Decimal Classification

1 EVASION OF DEFINITION

We shall begin with Rule 641 of ed 5 (1957) of CC. It reads as follows:-

"641 If a Subject is expounded according to a particular System of Thought, its (BC) must be fitted with an Amplifying Facet of Kind 1. We may call it also (SmF)". This definition of (SmF) assumes the definition of 'System'. But, this term is not defined. It is evidently taken as an 'assumed term'. Its meaning is assumed to be easily seen in the context in which it is used. There is some kind of explanation, however, in Ranganathan's 'Depth classification 12: Organisation of notation in Zone 3', section 21 System, (An lib sc, 2, 1955, 69). There we read as follows:- "An exposition of a subject can only be according to some system. In other words, there can be no document on a (BC) qua (BC). The ideas in a (BC) sans system are ineffable."

11 Help from Enumeration

CC itself relies on the Method of Enumeration to convey the connotation of the term "System". The following extracts from its schedules of systems do that work.

B2A	Systems of algebra
B2M	Boolean
B6A	Systems of geometry
B6M	Non-Euclidean
B6M3	Elliptic
B6M5	Hyperbolic
B6N	Line-complex
CA	Systems of physics
CK	Gravitational theory
CM	Kinetic theory
CM6	Ether theory
CM65	Electro-magnetic theory

CM9	Electron theory
CM96	Radio-activity theory
CN	Relativity
CN1	Quantum theory
CN2	Wave mechanics

JA	Systems of agriculture
JB	Forestry

LA	Systems of medicine
LB	Ayurveda
LC	Siddha
LD	Unani
LL	Homoeopathy
LM	Naturopathy

SA	Systems of psychology
SM	Experimental
SM9	Psycho-analysis
SN	Gestalt
SN1	Behaviourism
SN14	Individualistic
SN17	Reflexology
SN2	Typological
SN3	Field psychology
SN36	We-psychology

TA	Systems of education
TJ	Commenius
TL	Rousseau
TL2	Kant
TL5	Pestalozzi
TL6	Fichte
TL7	Herbart
TL8	Froebel
TL9	Mann
TM	Manual training
TN	Platoon
TN1	Montessori
TN3	Basic

XA	Systems of economics
XB	War economics
XM	Co-operative economics
XM5	Joint stock company
XM6	Trust (American)
XN	Public utility
XN1	Guild socialism
XN16	Syndicalism
XN17	Communism
XN19	Technocracy

13 An Illusion

The evasion of a formal definition and the dependence on the enumeration in the schedule produce an illusion as if "System" and (SmF) are the creation of CC or at least peculiar to that particular scheme of classification. In reality, however, the concept of "System" is intrinsic to the universe of knowledge itself. "System" and (SmF) exist in the Idea Plane. Literary warrant calls for collecting together all the documents belonging to a particular system. If this is not done, the Canon of Helpful Sequence and the Laws of Library Science themselves will be violated. Therefore, the findings in the Idea Plane in respect of "Systems" should be implemented in the Notational Plane by every scheme of classification.

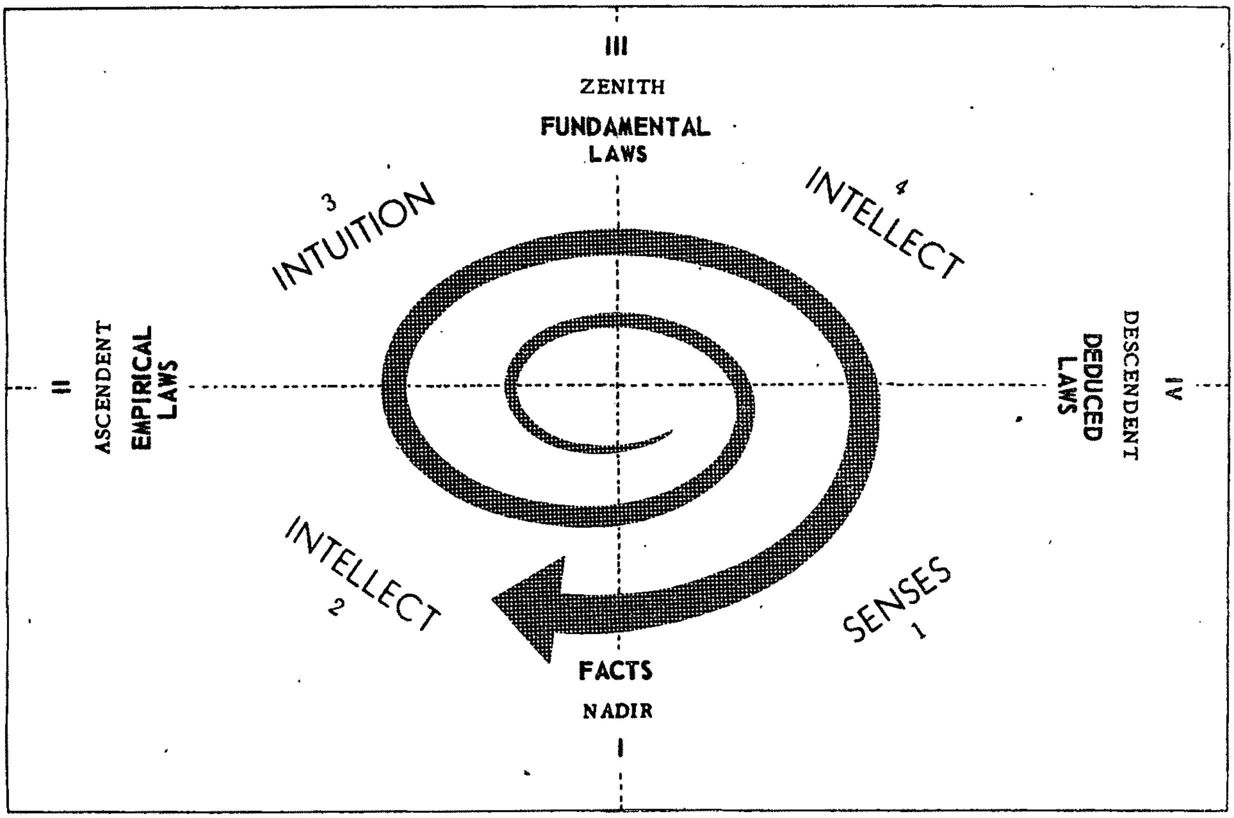
2 REMOVAL OF THE ILLUSION

The illusion about "Systems" is bad. It must be removed. To remove it, we should look for a definition of "System". We should atleast produce a definite objective criterion to distinguish one "System" from another.

21 Help from the Spiral of Scientific Method

We are now in a position to evolve such a criterion. This has been made possible by the concept of the Spiral of Scientific Method expounded in section 814 of Ranganathan's "Five laws of library science", ed 2, 1957. A schematic representation of this concept is given in the accompanying diagram.

Facts of experience are reduced to empirical laws with the aid of the intellect. Empirical laws are sublimated to fundamental laws with the aid of intuition. With the aid of the intelect, deduced laws are derived from the fundamental laws. All the empirical laws are bound to appear among the deduced laws, but some of the latter will turn out to be different from the empirical laws. Such new deduced laws are tested by reference back to experience. Now and again, it happens that they fail in the test. Or it also happens that new facts are experienced, which are not in conformity to the fundamental



SPIRAL OF SCIENTIFIC METHOD

laws. Care is taken to secure that every possible fault in the experiments and observations is eliminated and that every possible fallacy in the derivation of the deduced laws from the fundamental laws with the aid of logic, semantics, and calculus of every kind is also eliminated. If the contradiction between the new empirical facts of experience and the fundamental laws still persists, a crisis is declared. In due course, a new set of fundamental laws is formulated. When a new set of fundamental laws thus replaces an older one, a new "System" is born. We may say that one "System" is distinct from another "System", if the set of fundamental laws of the one is different from that of the other.

22 Application of the Criterion

Let us now apply this criterion to some of the systems listed in section 12.

221 Systems of Physics

Among the Systems of Physics, the following questions arise. Are the Ether Theory and the Electromagnetic Theory based on truly different fundamental laws and should they be treated as distinct "Systems"? Similarly, is the set of fundamental laws connoted by the Quantum Theory truly different from the set connoted by the Wave Mechanics to justify these two to be deemed to be two distinct "Systems" of Physics? Does Radio-active Theory constitute a "System" of Physics?

222 Systems of Psychology

In Psychology, it needs examination if Experimental Psychology is really a "System" — that is, if it is based on a distinct set of fundamental laws of its own. We should also make sure if the fundamental laws implied in Behaviourism are truly different from those implied in Reflexology, to call for these two to be treated as different "Systems" of Psychology. The "Systems" denoted by the terms Psychoanalysis, Individualistic Psychology, and Typological Psychology should also be examined in a similar manner.

223 Systems of Economics

The schedule of "Systems" in Economics is perhaps the worst hotch-potch. Surely, Joint Stock Company and the American Trust least deserve to be called "Systems" of Economics. It is not clear how far different "Systems" of Economic Distribution should be taken to be equivalent to different "Systems" of Economics itself. When this matter is cleared up, the whole schedule of "Systems" in Economics will need a drastic revision.

224 Systems of Medicine

The "Systems" enumerated in Medicine imply different sets of fundamental laws so far as Pharmocognosy and Therapy go. Is it equally so in regard to the other branches like Anatomy, Physiology, and Ontogeny? No doubt, literary warrant and the Canon of Helpful Sequence justify their being treated as if they are different "Systems" of Medicine. But, do their respective sets of fundamental laws also justify it?

225 Systems of Basic Classes in Mathematics

As Algebra and Geometry have been developed for long on the basis of explicitly stated postulates and axioms, there is the least cause for anxiety for a classificationist in preparing the schedule of "Systems" in their cases.

3 IDEA PLANE

The difficulties mentioned above all arise in the Idea Plane. Few (BC) are like those in Mathematics. The development of most of them is still meandering in the empirical plane. Many of them have no doubt hit upon some fundamental laws and have thereby entered the Spiral of Scientific Method. But a study of their fundamental laws has not yet been systematically made as the foundations of distinct "Systems", in the case of most of the (BC). The modern discipline of the Philosophy of the Sciences should enter this region and settle the problem of "Systems". Then only the classificationist will be on safe grounds. Till then he will have only to depend on flair subjectively and on literary warrant objectively.

31 Which Fundamental Category?

Assuming that "System" should necessarily be recognised in the classification of many (BC), the question that arises first is "Of which Fundamental Category is a System to be deemed to be a manifestation? ". The answer to this question is best sought by the Method of Elimination. We can certainly say that a "System" is not a manifestation of Time, or Space, or Energy, or Matter. According to one of the postulates pertaining to the Idea Plane, every Isolate of any (BC) should be a manifestation of one and only one of the Five Fundamental Categories; Time, Space, Energy, Matter, and Personality. Thus, a "System" of any (BC) should be deemed to be a manifestation of Personality.

32 Which Round?

The next question to be determined is the Round to which a "System" belongs. We have stated in section 1 that we cannot state anything about a subject unless we state it in relation to a "System" of it. This implies that the (SmF) of any (BC) belongs to the First Round.

33 Which Level?

The same consideration leads us also to the conclusion that the "System" should belong to the Earliest Level of manifestation of Personality in the First Round.

34 Naming of Levels

The simplest and the most expressive way of distinguishing the different levels in a round is to name them numerically in the sequence in which they are best taken. This is the method adopted by CC in its Rule 67. Further, its Rule 670 gives them also expressive and short symbolic names. Here are the Rules:-

"67 In each round there may occur more than one manifestation of Personality and Matter. The second, third, etc, manifestations of Personality and Matter in one and the same round are respectively called Second Level Personality, Third Level Personality, etc; and Second Level Matter, etc.

"670 Symbols like the following may be used:-

[P2] = Second Level Personality Facet;
[P3] = Third Level Personality Facet; etc.
So also [2P2] , [2P3] ... [2M2] , etc."

To be more truly expressive, the symbol should also indicate the round and the level. For this purpose, we may use [1P1] for First Round First Level Personality; [1P2] for the First Round Second Level Personality; ; ... [2P1] for Second Round First Level Personality; etc.

341 Favoured System

In any cultural epoch, it usually happens that one particular system alone has large literary warrant — very very large indeed when compared to the other systems of an earlier or later date of origin. We shall call it the "Favoured System" of the epoch. It deserves to be called "Favoured" for another reason also. In the cultural epoch concerned, it is the books expounded in accordance with that system which interest most and attract most the generalist readers. These are seldom interested in the books expounded according to any other system. It is only the specialist readers, who are always few in number, that show interest in the other systems. It is therefore helpful to make the books in the 'Favoured System' come on the shelves prior to those on the other systems. A similar sequence is also helpful among the main entries in a catalogue or a bibliography. It is to implement this finding that CC has the following Rule:-

"6413 The Focus in the (SmF) should be omitted (ignored), if the exposition is according to the currently Favoured System — that is the system in which the majority of the books is expounded."

342 Illustration

To illustrate, let us assume that Allopathy is the currently Favoured System of the (BC) Medicine. It then follows that the other systems such as Ayurveda and Homoeopathy are non-favoured systems. Then in classifying a book in Allopathy, the (SmF) will be ignored, whereas it will not be ignored in classifying a book in Ayurveda or Homoeopathy. Incidentally, this Rule brings satisfaction to the Law of Parsimony also. For, in the majority of books on Medicine in a generalist library, we can manage as if there were one facet less.

343 [1P1] in Favoured System

An important consequence flows from the omission of the (SmF) in the books of the Favoured System. The surviving or apparent [1P1] of any book in the Favoured System will not be (SmF) but a facet based on a regular train of characteristics. For example in a book on Allopathy in Medicine, the Organ Facet will be the surviving or apparent [1P1]. Thus the majority of the books on any (BC) in a generalist library, will accustom the reader to look upon a Facet based on a regular train of characteristics as the [1P1] .

344 [1P1] in Non-Favoured System

To avoid confusion, it is desirable to denote by [1P1] the corresponding facet based on a train of characteristics, occurring in a book belonging to any non-favoured system also. But from what has been said in section 33, (SmF) should have precedence over the facet which we now desire to call [1P1] . Also, according to section 31, (SmF) is a [P] . By what symbol are we to denote it? It is obvious that it is [1P] . Therefore the question to be answered is "To what level should it be deemed to belong?" As it has to come immediately after (BC), it should be called the Facet of Level 1. But we have stated at the beginning of this section that we should adopt the convention of calling the Level based on a Train of Characteristics the Facet of Level 1. Therefore if at all we should call (SmF) a Facet of

Level 0 — that is symbols, by [1P0]. But even this is not possible on account of another facet having to be interpolated between (SmF) and [1P0], in a certain class of books. In CC this facet is defined by the following Rule:-

"642 If the exposition of a (BC) is restricted to a limited range only of any of its facets, its (BC) must be fitted with an Amplifying Facet of Kind 2. We may call it also (SpF)."

In such a document, [1P0] can only denote the (SpF). By considering a book admitting of (SmF) as well as (SpF), we are led to infer that, if at all, (SmF) should be deemed to be a Facet of Level (—1) and thus be denoted by the symbol [1P—1]. But section 6 and its subdivisions will show that even this is not possible. For according to those sections, it may happen that a Branch-System Facet has to be interpolated between (Smf) and (SpF). In that case, if at all, we may have to denote (SmF) by [1P—2].

345 Alternative Approach

The naming of the level of (SmF) is thus precarious. Who knows that some other facet may not claim to be interpolated between it and [1P1]? All that we can be certain about is that (SmF) will come immediately after (BC)— that is, no other facet will ever be interpolated between (BC) and (SmF). In view of this, can we invent an alternative way of naming the level of (SmF)? The symbolic metalanguage invented should be such as to be extended to all the levels of facet upto what we have agreed to call [1P1]. Such a symbolic metalanguage should also avoid the clumsy symbols of negative numbers for levels. Perhaps, the mixed base of ordinal numbers used in CC will suggest the replacement of negative numbers by the lower case letters. For Rule 025 of CC prescribes the lower case letters as being ordinal numbers of lower value than 1. In that case, since (SmF) is to come immediately after (BC), it may be denoted by [1Pa]. This implies that (SmF) is deemed to be a facet of level "a". Then a Branch-System Facet of the first order may be denoted by [1Pb]. The one of the next higher order may be denoted by [1Pc]. And so on, providing for a reasonable number of orders in branch-systems. But this number is not the same in all (BC). Then to what level are we to assign (SpF)? Perhaps verbal mnemonics may be used here and (SpF) may be denoted as [1Ps].

4 VERBAL PLANE

When there is lack of clarity in the Idea Plane itself, we cannot expect anything better in the Verbal Plane. Indeed, it is all chaos there. Even where everything is clear-cut in the Idea Plane, we find inconsistency in the Verbal Plane. It is therefore no wonder if the terminology used to denote "Systems" is of no help whatever in recognising the existence of distinctive "Systems". This is perhaps so in most of the languages.

5 NOTATIONAL PLANE

While the phenomena in the Idea Plane are quite independent of the Scheme of Classification used, the realisation in the Notational Plane depends entirely on the Scheme. The Facet Analysis has been applied consciously only in CC. Again it is only CC that has consciously recognised (SmF). Moreover, it is the notational system of CC that is sufficiently mixed and sufficiently correlated to the variety of the findings in the Idea Plane, that need to be implemented in the Notational Plane. Above all, it is only CC that gives Schedules of Systems, however tentative they may be. Therefore, the sections of this communication dealing with the Notational Plane are all turned on the CC.

50 Cluttering together of Connecting Symbols

In an analytico-synthetic scheme of classification, one of the clumsy phenomena to be guarded against in the notational plane is the cluttering together of two or more connecting symbols. The history of the CC in the notational plane can be said to be, in one sense, the history of the avoidance of cluttering of connecting symbols. Before going into this history, it must be clearly remembered that the very essence of an analytico-synthetic classification is the use of connecting symbols between different facets.. Probably, it is as well to call them separating symbols between the facets of a class number. It has been proved that these are essential to secure freedom for the isolate in any one facet, whatever be its position in the class number, to be sharpened to any degree of intension quite independently of what happens to the isolate in any other facet. In other words, the connecting symbols make it possible to maintain Hospitality in Chain in each facet and not merely in the last of the facets. Without the connecting symbols, all but the last of the facets will be locked or frozen. It has been further proved that all connecting symbols are earlier than any substantive symbol, in the ordinal scale. Even the non-hierarchical notation being experimented on by Mr. Coates has not found it possible to dispense with the connecting symbols. Both hierarchical and faceted notation contribute their respective quota to the fulfilment of the Canon of Expressiveness. The notation of Coates finds it useful to retain the Expressiveness contributed by faceted notation with connecting symbols and discards only the Expressiveness contributed by hierarchical notation with decimal fraction notation used in quite an orthodox way.

51 Stage 1 : Facet Analysis

The chief cause for the designing of Faceted Notation — implying Facet Analysis in the Idea Plane — was the irritation caused by the Notation of DC being too rigid to keep step with the continuous proliferations in the Universe of Knowledge and even with the more specialised books appearing beyond the level of the text-books of old. This was vaguely traced to the freezing of all the facets but the last of a subject in the notational plane, in spite of one and all of the facets growing in intension in the idea plane, as time advances. It was to remove this difficulty that CC was designed. This was in November 1924. At that early stage, the design was not based on any system of guiding principles or canons. In fact even the Five Laws of Library Science had not taken shape. Most of the work should have been guided from the unconscious. To quench the feeling of irritation, what was later named "Facet" was vaguely felt in the idea plane and a colon was inserted between the Facets in a Class Number. It was looked upon as a Separating Symbol and not so much as a Connecting Symbol. Nor was the ordinal value of colon fixed. Cluttering of connecting symbols threatened to appear even at that first stage. It was as irritating as the freezing of facets in DC. The threat appeared systematically in the (MC) History. To use current terminology, the Facet Formula for it was put down as V [P] : [E] : [T] . But there were many books which were multi-focal in [E] . However every book in History has a Focus in [T] . Though there was no conscious Rule at that stage on the subject, a multi-focal facet was left vacant in the class number. But in most (BC), it was the first or the last facet appearing in the Facet Formula — and there were usually not more than three facets in that formula — that had to be kept vacant. Let us illustrate with the (MC) Botany. It is denoted by I and the facet formula given was I [P] : [E] : [S] .

Ser No	Subject	Facet Analysis	Class Number
1	Ecology of algae in Arctic zone	I [Algae] : [Ecology] : [Arctic zone]	I22:5:198
2	Ecology of algae	I [Algae] : [Ecology] : [ ]	I22:5
3	Botany of algae	I [Algae] : [ ] : [ ]	I22
4	Plant ecology in the Arctic zone	I [ ] : [Ecology] : [Arctic zone]	I:5:198
5	Plant ecology	I [ ] : [Ecology] : [ ]	I:5
6	General botany	I [ ] : [ ] : [ ]	I

But, in the main class History, it is only the middle facet that has to be kept vacant in the books on General History. For there can be no book in History without a focus in [T]. For example,

Ser No	Subject	Facet Analysis	Class Number
1	Constitutional history of India till 1950's	V [India] : [Constitutional] : [1950's]	V44:2:N5
2	General history of India 1950's	V [India] : [ ] : [1950's]	V44: :N5

This cluttering of colons was irritating. The instinctive method adopted in the first stage to remove this cluttering was to improvise an isolate in [E] in the form "1 General". Then the class number became V44:1:N5. But this method was a violation of the practice of treating, in the idea plane, a multi-focal facet as vacant and omitting the vacant facet in the notational plane. But even such an improvisation could not be made in the case of a few books in the (BC) Engineering, in which two middle facets had occasionally to be treated as vacant. Thus three colons cluttered together in their cal numbers.

52 Stage 2: System Facet

Within about ten years of the beginning of CC, the (SmF) was introduced in a few (MC), though it was done without any conscious principle for guidance. In an equally unconscious way, the (SmF) was omitted in the case of the Favoured System. It often turned out that a book in the Favoured System did not present [1P1]. Consider the following:-

Ser No	Subject	Facet Analysis	Class Number
1	Emotion of women in psycho-analysis	S [Psycho-analysis]: [Woman] : [Emotion]	SM9:15:5
2	Emotion of women in classical psychology	S [ ]: [Women] : [Emotion]	S:15:5
3	Classical psychology of emotion	S [ ]: [ ]: [Emotion]	S: :5

The cluttering of colons in the third example had to be avoided. For this a special Rule had to be improvised. It was that colon should be added before [1P1] only if it was preceded by (SmF). This is equivalent to saying that that there is no need to show in the class number that the (SmF) was absent. On the basis of this Rule, the class numbers of the third subject became S:5 and that of the second S15:5.

53 Stage 3 : Fundamental Categories and Optional Facets

By 1949, the five Fundamental Categories of Personality, Matter, Energy, Space, and Time, of one and only one of which every facet is a manifestation, were postulated. So also, distinctive connecting symbols were postulated for each fundamental category. Then, the subjects given as examples in History and Psychology received the following class numbers:-

Ser No	Subject	Facet Analysis	Class Number
1	Constitutional history of India till 1950's	V [India] : [Constitution] . [1950's]	V44:2.N5
2	General history of India till 1950's	V [India] : [ ]. [1950's]	V44.N5
3	Emotion of women in psycho-analysis	S [Psycho-analysis] , [Women] : [Emotion]	SM9., 15:5
4	Emotion of women in classical psycology	S [ ], [Woman] : [Emotion]	S15:5
5	Emotion in classical psychology	S [ ], [ ] : [Emotion]	S:5

The omission of the connecting symbol comma between the (BC) Number and the [P] immediately following it is prescribed by the Rule:- "In each round, the connecting symbol preceding the first [P] should be omitted." This Rule has not been explicitly stated even in ed 5 of CC. It is left to be covered by the facet formula and by other special Rules. This must be set right in the next edition.

54 Stage 4 : Zone Analysis

In 1950, FID formed its FID/CA (= Committee on the General Theory of Classification) and asked me to take charge of it. This led me to think out afresh and objectively about the various problems arising in the Idea Plane as well as in the Notational Plane in all the schemes of classification. The Fifth annual report (1955) was the result of examining the potentialities of a Mixed Notation — that is, using as the base of notation several different sets of conventional symbols, fixing definite ordinal values to all of them. It was found that CC and UDC had the most Mixed Notation. Of these, CC seemed to have exploited the potentialities of the mixed notation better than UDC, unconscious though it was. The Sixth annual report (1956) was turned on examining whether all the potentialities of the Mixed Notation was fully exploited. This led to the design of the 'Efficiency Table'. This table is similar in form to the one given below. With this table as tool, it was possible to detect all the zones in an array and their respective sectors, which was left fallow. In connection with each fallow sector, the probability for its never being requisitioned in a certain normal way — indicated in the following table — was carefully examined in the Idea Plane. If there was a reasonable certainty that any sector would not be requisitioned in that normal way, it was available for use in some other way. Such an examination sometimes brought to mind the possibility of a sector being used in the normal way too, though it had been lost sight of even in the idea plane. Work along these lines disclosed that the zones and sectors presented by an array had real correlates in the idea plane. Thus, the zones and the sectors are intrinsic in the idea plane itself and not contingent on the notational system used. The following table brings out these correlates:-

Zone	Sector	Idea Plane Nature of Isolates	Notational Plane Nature of Digits
1	1	Common Isolates by Enumeration	Roman Small
2	1	Special Isolates by Enumeration	Arabic Numeral
2	2	Quasi Isolates by Enumeration	9 followed by Arabic Numeral
3	1	Special Isolates by Alphabetical or Chronological Device	9 followed by Roman Capital
3	2	Special Isolates by Chronological or Alphabetical Device	Roman Capital
4		Common Isolates by Subject Device	(, that is Starter Bracket (Packet Notation)

In a (BC) any sector in any array, not needed for utilisation by a special device, can be turned over to isolates by enumeration. The idea is not to leave any sector fallow. The Seventh annual report (1957) has made a good use of turning practically all the sectors of an array to isolates by enumeration in the case of Matter Facet. This was also brought out in my opening address at the International Study Conference on Classification and Information Retrieval held at Dorking, England, from 13 to 17 May 1957. These will be found in the Proceedings of the Conference referred to in Section 14.

55 Stage 5 : Telescoping of Facets

Column 3 of the Efficiency Table for normal use of sectors, given above, discloses that the same characteristic is not used as the basis of division in all the sectors of an array. This means that we put ourselves on the crater of the volcano of Cross-Classification. But, this danger is totally averted by our consciously treating the different sectors as different facets in disguise. If a document presents an isolate in each of two or more sectors of the [P], its class number will give the isolate numbers belonging to the different sectors in different facets separated by comma in accordance with the rules. This is equivalent to regarding each of such sectors as a distinct level of [P] This means that the levels of [P] stand fanned out distinctively in the class number, but appear in one and the same array in the schedle. It is this phenomenon that is called Telescoped Facet.

56 Cluttering of Commas avoided

The Zone Analysis ensures that the first digit (or digits if an octavising digit occurs at the beginning) of no two sectors of the array — that is the levels of [P] obtained by fanning out the telescoped array — will be of the same species. Therefore, there is no need for showing vacant levels in the class numbers. In other words, there will be no cluttering of commas in the class numbers, to indicate the name of the level. Also, invariably, there will be no comma between the (BC) and the first isolate number immediately following it, whatever be the sector of the array in the schedule from which it is drawn. This is a valuable contribution to the elegance of class number made by the concept of Telescoped Facet which in its turn is a contribution of Mixed Notation. Examples of this telescoping will be found in the subdivisions of the isolate '9 Personnel management' in [E] cum [2P] in the schedules for "X Economics" in CC. Illustrations of class numbers in which sectors are fanned out as levels will be found in Chapter "X Economics" of the Rules of CC and in Ranganathan's Depth classification 19:Classification of Management (An lib sc, 3, 1956, 33-72).

57 Application to System Facet

The numbering of a focus in (SmF) is prescribed by the following Rule of CC:-

"6412 The focus in the (SmF) should be got by the Chronological Device using the Date of Origin of the System as Epoch." This means that the System Isolates are accommodated in the last octave of Zone 3 of [1P1] . This sector is deemed to be more concrete than the earlier sectors of the array, which are containing isolates, got on the basis of special characteristics. This means that, if a document presents an isolate in the system sector as well as in an earlier sector, the isolate numbers belonging to the different sectors will stand fanned out into different levels of facets in the class number. Moreover, since the system sector is declared to be more concrete than the earlier sector, it will form the first level of [P] — exactly as required by the idea plane.

571 Pseudo-Chronological Device

The chronological device is governed by the following Rule of CC:-

"683 The Chronological Device consists in using the appropriate Chronological Number for the formation of a subdivision of an isolate, which is capable of chronological formation, or when the individualisation of the isolates or the sub-isolates may be made to depend conveniently on the period of year of origin or birth or on the year of first investigation or on the year of discovery or on the year of initiation or commencement or on the year of occurrence, or on the year that may be definitely associated with the respective isolates in any other manner or for any other reason". And as already shown in Rule 6412 quoted earlier, the Date of Origin of the System should be used for constructing the isolate number of a system. But, this is not always practicable; it is impracticable in the case of ancient systems, for which we do not have an accepted chronology worked out. For example, the following five System Isolates are given in the (BC) L Medicine.

LA	Systems by (CD)
LB	Ayurveda
LC	Siddha
LD	Unani
LL	Homoeopathy
LM	Naturopathy

We are reasonably certain that Homoeopathy and Naturopathy came into vogue as definite systems of medicine with literary warrant of their own in the eighteenth century and the nineteenth century respectively. But, little is known — or atleast agreed upon — about the centuries of origin of the three Indian Schools of Medicine listed above. All that is known is that we are reasonably certain that arranged chronologically, they would fall into the sequence in which they are mentioned above. Therefore, the function of the isolates digits B, C, and D respectively used to denote them is no more than that of showing their relative position in the sequence. None of them can be taken to denote the millennium for which they stand in the chronological schedule. Thus, they are not chronological isolate digits in the strict sense; they can only be taken to have been derived by Pseudo-Chronological Device. In general, the isolate numbers of systems originated in the far-off ages are got only by the Pseudo-Chronological Device.

6 BRANCH SYSTEMS

Let us consider the following selection from the schedule of Systems given in CC:-

SM9	Psycho-analysis (Founder: Freud)
SN14	Individualistic psychology (Founder: Adler)
SN2	Typological psychology (Founder: Jung)

It is known that Adler and Jung began as associates of Freud within the System of Psycho-analysis. Later on, differences arose among them, which led each of them to give a distinct name to his respective System. Assuming that the differences are sufficient to deem them to be distinct Systems of Psychology, the question is whether there is not something substantial, which is common between them and Psycho-analysis. Assuming that there is, the Canon of Filiatory Sequence would demand that no other System, totally alien to them, should come between them. But the use of the Chronological Device to get the isolate numbers of Systems is liable to bring in between them some alien Systems. In fact, the schedule in CC has SN Gestalt Psychology and SN1 Behaviourism in between Psycho-analysis and Individualistic Psychology, and SN17 Reflexology in between Individualistic Psychology and Typological Psychology. Here the Idea Plane poses a definite problem. But till now, it was felt that the Notational Plane could not implement it. Now that we are able to utilise the versatility of Mixed Notation with the aid of Zone Analysis, a solution appears to be possible.

61 Solution in the Idea Plane

The question suggested in the Idea Plane is that Psycho-analysis should be treated as the Basic or Stem System and that the other two should be treated as its Branch Systems. Each of the Branch Systems should be treated as isolates in a (BSmF). The (BSmF) should come immediately after the basic (SmF). In other words, since the (SmF) is [1Pa] , the (BSmF) should be [1Pb] Further, the subclasses of (SmF) based on regular Trains of Characteristics should have precedence over the Branch Systems. To put it in symbolic metalanguage, we should have the sequence:-

S
S [1P]
S [1Pa] , [1P1]
S [1Pa] , [1Pb]
S [1Pa] , [1Pb] , [1P1]

62 Implementation in the Notational Plane and a New Kind of Telescoping

The above finding in the Idea Plane can be implemented in the notational plane by

1 Postulating that [1Pb] is a dependent facet -- that is, it cannot come unless it is preceded by [1Pa] , both in the Idea Plane and in the Notational Plane; and

2 Telescoping the [1P1] and [1Pb] in the schedule.
In the schedule, the isolates of [1P1] occupy the second Zone. We may therefore accommodate the isolates of [1Pb] -- that is, of the (BSmF) -- in the last octave of the third Zone. This can be done though the isolates of [1Pa] -- that is, of (SmF) -- are already accommodated in that very octave. For, as already stated [1Pb] is a dependent facet which must be preceded by the basic facet [1Pa] This is a new type of Telescoping.

63 Isolate Number in Branch System Facet

The fact that the isolates in (BSmF) are to be accommodated in the last octave of the third Zone implies that the isolate numbers in that facet should begin with a Roman Capital. Roman Capital can be had either by the Chronological Device or by the Alphabetical Device. If the Chronological Device is used, there is always the contingency that there will be a second digit in the isolate number and that it will be an Arabic Numeral. To avoid homonym in the notational plane, we must insert the connecting symbol, comma, between (BSmF) and [1P1]
If we use the Alphabetical Device, the second digit in the isolate number will also be a Roman Capital. We may then omit the connecting symbol, comma, between (BSmF) and [1P1]
And we can afford to have the second digit as an Arabic numeral if it is an isolate of [1P1] that follows a single-digited Branch System Isolate Number, and as a Roman capital if it is merely the second digit of the Branch System Isolate Number. Then all the documents belonging to a Branch System whose isolate number is a single letter will come together, and then only will come the documents belonging to another Branch System whose isolate number begins with the same letter but is followed by another letter. It is obvious that the Law of Parsimony would prefer the Alphabetic Device, as it would give shorter class numbers.

64 Which Name for Alphabetical Device

One of the necessary conditions for the use of the Alphabetical Device is that the names of the isolates should have international names. Surely, the names of the originators of the Branch Systems are proper names and are therefore eligible for use in Alphabetical Device. If all the Branch Systems are known by the same name in all the languages — that is, if their names are virtually proper nouns —, the names of the Branch Systems also are eligible for use in Alphabetical Device. The choice between these two classes of proper names is not easy, except to say that if we cannot be certain that the names of all Branch Systems will be proper names, it will be safer to use the names of the originators for the Alphabetical Device. In either case, I should be replaced by J and O by P. Here are examples:-

Ser No	Subject	Class Number by Name of Originator	Class Number by Name of System
1	Psychology of women in Psychoanalysis	SM9, 15	SM9, 15
2	Adler's Individual Psychology	SM9, A	SM9, J
3	Emotions in Adler's Individual Psychology	SM9, A:5	SM9, J:5
4	Emotion of women in Adler's Individual Psychology	SM9, A15:5	SM9, J15:5
5	Jung's Typological Psychology	SM9, J	SM9, T
6	Psychology of women in Jung's Typological Psychology	SM9, J15	SM9, T15
7	Immanuel's Jumper Psychology	SM9, JM	SM9, JU
8	Psychology of women in Immanuel's Jumper Psychology	SM9, JM15	SM9, JU15

To make the examples bring out all the features, an imaginary Branch System with the name Immanuel's Jumper Psychology is used. Naturally, the sequence of the subjects will be different in the two methods. But there is nothing to say that one is more helpful than the other. But what does deserve consideration is if the use of the Chronological Device will give a more helpful arrangement to the extent of overlooking the rejection of it by the Law of Parsimony.

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UNION CATALOGUES IN GREAT BRITAIN

S. P. L. FILON

National Central Library, London

Gives an account of the building up of union catalogues in Great Britain for efficient inter-lending service. Shows the role of the Regional Systems and their compiling procedures. Describes the National Union Catalogue, its scope, arrangement, up-to-dateness, efficiency, cost, etc. The Outlier Union Catalogue, the German & Russian Union Catalogues and union catalogues of periodicals are covered. Isolates some problems to be solved.

1 INTRODUCTION

In 1930 the National Central Library in London was established as a clearing house for loans between British libraries. There were abroad similar agencies, but in most cases these formed part of an already existing library (usually the National Library), examples being the Auskunftsburo (Information Bureau) at the Prussian State Library in Berlin, and the National Libraries at Berne and at the Hague. Such institutions found it necessary, in most cases, to build up union catalogues (or collective catalogues of the contents of the libraries taking part in the interlending scheme), in order to carry out efficiently their functions as interlending centres. A national clearing house for interlibrary loans which attempts to trace books without the aid of such a catalogue is working in the dark and greatly handicapped. Nevertheless it is possible in practice to operate an interlending service without a union catalogue, as has been shown, for instance, in England from 1925 to 1931 when the university libraries ran an interloan service based solely on the circulation of requests among the cooperating libraries, or again in the County of Yorkshire where to this day an extensive interlending service between the different libraries in the country is carried on without a union catalogue. But on the whole experience has shown that without a union catalogue such a service is both slow and wasteful of effort.

One of the most urgent problems, therefore, that faced the Trustees of the new National Central Library was how to compile a union catalogue of books in British libraries. Should this be done centrally by the N.C.L. itself, or should its actual compilation be delegated to a number of subsidiary organisations responsible for different geographical areas?

2 REGIONAL SYSTEMS

There were at that time in Great Britain about 500-1000 libraries which were willing to be included in the interlending system, either through the proposed new Regional Systems or by direct cooperation with the N.C.L. The majority of these were public libraries but there were also a good many university and special libraries that were prepared to cooperate. The incorporation of the bookstocks of such a large number of libraries into a centrally compiled union catalogue would have presented very great technical problems. There is no doubt that a centrally compiled catalogue would have involved making a selection from among the available libraries, thereby sacrificing the smaller ones. It was therefore decided to create Regional Systems, as proposed in the Kenyon Report of 1927, which would not only greatly diminish the demands for loans made on the N.C.L. by local libraries, but would enable a series of regional union catalogues to be compiled locally and then amalgamated into a national catalogue at the N.C.L. in London. Unfortunately this method of compiling a national union catalogue did not permit of the incorporation in the same catalogue of libraries not belonging to the Regional Systems. The N.C.L. was therefore obliged to create another union catalogue to record the holdings of non-Regional libraries; this is the catalogue now known as the Outlier Union Catalogue.

21 Compilation Procedure

The Regional Union Catalogues were compiled by typing entries at the constituent libraries in each Region. Slips were then sent to the headquarters library of each Region where a Regional Bureau was established to build up the union catalogues and to deal with requests for loans. At each Regional Bureau the titles received on the local slips were retyped on to 4" x 8" slips, four carbon copies being made of each entry. The top copies were used for the Regional Union Catalogue and one of the carbon copies for each entry sent to the N.C.L. The possibility of making copies, which this system allowed, was the main reason why a card catalogue was not adopted. At that time satisfactory photographic methods of copying cards had not been developed. On each entry in the regional union catalogues the locations in one or more constituent libraries in the Region were indicated. These locations were not indicated in the carbon copies made for the National Union Catalogue. In some Regions the compilation of the regional catalogue was facilitated by copying the catalogue of the largest lending library in the Region and circulating this among the other libraries in the Region as a basic catalogue on the slips of which each library indicated its holdings, adding further entries for works not in the basic catalogue. After the circulation of the basic catalogue and its annotation by constituent libraries further notification of entries to the Bureau by local libraries was done on special notification slips. In recent years, however, many Regions have made use of the British National Bibliography for the notification of additions.. On this system libraries send to their Regional Bureau either a list of B.N.B. numbers, or marked copies of B.N.B. parts, instead of sending a notification form for each book added, a method which resulted in many duplicate slips being received by the Bureaux and which still necessitated (as the B.N.B. method does) the typing out of a quadruplicate master entry for the union catalogue.

22 Other Union Catalogues

The above outlines the procedure used in most cases for the compilation of the Regional Union catalogues. There were certain exceptions. One is the London Union Catalogue which includes all the borough libraries of the Metropolitan Area of London. This was the first British union catalogue of books and was begun before the creation of the Regional Systems and their union catalogues. Being thus an isolated effort, the pioneer union catalogue, it was decided to compile it on cards. It has never, therefore, been incorporated with the N.C.L.'s National Union Catalogue, although it is housed in the same building. The two Welsh union catalogues, created respectively at Aberystwyth and at Cardiff, are also card catalogues which again have not been incorporated with the National Union Catalogue. Finally there is the case of the Yorkshire Region which has never so far undertaken the creation of a catalogue on the assumption that one would not be economically justifiable.

3 NATIONAL UNION CATALOGUE

The National Union Catalogue is nothing more than the sum of the Regional Union Catalogues, as it is composed entirely of sheaf catalogue slips (4" x 8") received from the different Regions (with the exceptions noted above), these being carbon copies of the Regional Catalogue entries. Each Region uses slips of a different colour so that the National Union Catalogue is a multichrome affiar, a system which makes it easy to identify the source of the entries at a glance. The duplicate entries received from the Regions normally contain no key indicating the precise location of the book; all that can be ascertained from the National Union Catalogue is the Region to which a book belongs. Application by the N.C.L. for the loan of a book is made to the appropriate Regional Bureau where the local union catalogue has to be consulted in order to discover in which library or libraries in the Region the book exists. The locations in the Regional Union Catalogues are shown by means of key numbers which indicate the various cooperating libraries. the holding libraries for any particular work being indicated by placing an asterisk next to the key number of the library concerned.

31 Scope and Arrangement

As the Regional and National Union Catalogues were not designed to be bibliographical instruments but intended to be merely 'finding lists', the size of each catalogue entry is cut down to the minimum required to enable one to identify any particular edition of a given work. Apart from the date and occasionally the place of publication no collation is included in the entry. As regards arrangement, the catalogues are author catalogues and the Anglo American Code Rules are followed for the heading. The slips are filed alphabetically under authors; no attempt is made to provide subject entries, or to make a parallel subject union catalogue. This would not justify the expenditure of time and money involved, as the most efficient way to deal with subject requests is to investigate them first from a bibliographical point of view and, having decided which works it would be desirable to provide in answer to the enquiry, then to look up these titles in the union catalogue in order to find locations.

32 Coverage

The coverage of the National Union Catalogue does not now include periodicals; entries for these are received from the Regions but are transferred to the periodical section of the Outlier Union Catalogue which is based on material obtained from university and special libraries, these being richer in periodical material than most public libraries. Book coverage is fairly complete except that fiction is excluded (apart from older publications), as well as certain categories of material excluded from normal interlending. As regards the completeness (apart from the excluded classes of material) of the National Union Catalogue and parent regional catalogues, this is uneven, as the completeness of the Regional Union Catalogues varies greatly. At present the total number of different titles recorded in the National Union Catalogue is approximately 800, 000 (the corresponding figure for the Outlier Union Catalogue being 400, 000).

33 Up-to-dateness

In considering the up-to-dateness of the union catalogues one must refer to the question of withdrawals. In the case of the Regional Union Catalogues these were notified by libraries on notification slips, until the appearance of the B.N.B. made it possible to use this as a means of notification. In theory it is very desirable that withdrawals from the stock of libraries contributing to a union catalogue should be notified promptly, and the entries in question deleted from the union catalogue, but in practice when a union catalogue is being built up the incorporation of new entries seems, naturally enough, to take precedence over the removal of older entries (or locations) for discarded books. The question of withdrawals raises of course the general point as to whether books which are likely to be withdrawn from stock are normally worth recording in a union catalogue. The time and money required to produce a union catalogue are considerable and it seems pointless to waste either on titles (or locations) that only make a temporary appearance in the catalogue. In deciding whether to do so one must weigh against this waste of time and money the value which this "temporary" entry is going to have in facilitating loans of the work in question. Certain of the Regions have now largely abandoned withdrawing entries from their union catalogues. One thing which militates against withdrawing titles (though not locations) from the regional union catalogues is that the principle of preserving at least one copy of out of print books is now accepted by most of the Regions.

34 Efficiency

The efficiency of a union catalogue is indicated by the proportion of requested titles that can be located by its aid. In the case of most of the Regional Systems over 80% of requests are satisfied within the Region itself by means of the union catalogue. The remainder, not so traced, represent books not available within the Region. Such requests are normally passed on to the N.C.L., where the National Union Catalogue and Outlier Union Catalogue between them provide locations for about 75%-80% of all the applications (for books) received by the Library and not satisfied from its own stock of books (these catalogue locations do not of course always result in the book itself being obtained on loan). This represents a fairly good percentage if it be remembered that only requests for relatively rare or specialised works reach the N.C.L., the rest being disposed of by the Regions themselves. Whether the union catalogues will ever contain anything like 100% of titles existing in the country (and available for loan) is doubtful. In any case there always remain the requests for material, both out-of-print and current, which has not been purchased or otherwise obtained by any library taking part in the interlending system, mainly foreign material but including a good many older British books and a considerable number of periodicals both British and foreign. This raises the question as to whether union catalogues of the type used in this country can be made to indicate gaps in coverage by cooperating libraries. Can one say, for instance, whether libraries represented in the National Union Catalogue have between them adequately covered the output of books on philology? The answer is no, because the arrangement of entries is alphabetical by author and there are no subject entries. On the other hand coverage of current English books (on an author basis) is revealed at once in the case of those Regions where notification is done by means of the B.N.B. Again, however, the Regional Catalogue itself does not provide this information, only the marked copies of the B.N.B. do so. In order to check coverage by subject laborious check of selected titles of books and periodicals would be required. In fact only a subject union catalogue (or a bibliography with locations) would serve for this purpose.

35 Cost

It is difficult to arrive at any reliable estimate of the cost of building up the central catalogues at the N.C.L., as the work has been so inextricably mixed up with other functions of the Library, such as information work and interlending work based on the use of the union catalogues. All that could be estimated, even approximately, would be the cost of materials and even this involves a difficult calculation. One can only be sure that the National and outlier Union Catalgoues have between them cost many tens of thousands of pounds since they were first begun in the early 1930's. No figures are available, either, to indicate what the cost has been of compiling the Regional Union Catalogues. One can hazard a guess that for most Regions the total spent must lie between £10,000 and £20,000. In any case the funds provided initially by the Carnegie United Kingdom Trust proved to be inadequate to complete even the basic catalogues, without allowing for continued maintenance. Grants of £3,000 to £5,000 were made to the Regions for union catalogue purposes, but when the war came most of these had been exhausted and progress after the war had to be financed from the subscriptions paid by cooperating libraries for the daily running of the Regional Bureaux. One of the causes of the inadequacy of the funds provided was that costs rose steadily in the pre-war years and even more rapidly during the war. Had the money provided been spent say in one year greater value would have been obtained from it. All union catalogue operations should be completed, as far as the basic work is concerned, in as short a time as possible and not allowed to drag on over a large number of years when the inevitable decline in the value of money produces its maximum effect. The question has often been raised of obtaining State funds to complete and maintain the various National and Regional Union Catalogues, and possibly also to allow the efficient exploitation of these for loan purposes, on the grounds that the National Central Library and the Regional Systems form collectively, with their union catalogues, a national interlending machine which can only be considered as a single unit, both from the administrative and from the financial point of view. The State, however, has so far made a clear distinction between Regional Systems, established and maintained mainly by local government libraries (public libraries) and the largely state supported National Central Library which in any case is the centre of a much wider system of libraries than those belonging to the Regions i.e. the National Central Library System includes most of the university and many of the special libraries. Whatever may be the wider implications of the matter, there seems good reason to think that the Regional Union Catalogues can be regarded as an integral part of the National Union Catalogue, the "central" portion of which is financed from a Treasury Grant to the National Central Library.

4 OUTLIER UNION CATALOGUE

Apart from the National Union Catalogue and its satellite Regional Union Catalogues there are three other union catalogues at the National Central Library of which something should be said here: the Outlier Union Catalogue and the German and Russian Union Catalogues. Of these the most important is the Outlier Union Catalogue, which dates back to 1931 when the Information Department of the National Central Library was formed to deal specifically with interlibrary lending and to create the necessary bibliographical apparatus. This catalogue, commenced before the National Union Catalogue had begun to take shape, is a card catalogue and cannot therefore, in its present form, be amalgamated with the N.U.C. It was compiled centrally from lists of entries or cards of new accessions, or, in certain cases complete holdings, sent in to the National Central Library by Outlier Libraries and other cooperating special libraries in the course of many years. To it have been added entries for all books located by the National Central Library in special libraries. The material which it contains is therefore, specialised, relatively up-to-date and in demand; in other words it is, de facto, a selective union catalogue. That this type of union catalogue, containing as it does a lower proportion of "dead matter" than one which lists the complete holdings of the cooperating libraries, has its uses is shown by the fact that although the Outlier Union Catalogue contains less than half the number of entries in the National Union Catalogue as many books are located by means of it as through the N.U.C. The Outlier Union Catalogue also contains entries for works requested through the National Central Library but not located anywhere. These entries not only give the title of the work but indicate what search was made for the book, thus avoiding unnecessary duplication of effort when later requests are received for the same work. Nevertheless, it is sometimes necessary to repeat a search after an interval of time (if a new request for the same work comes along), especially where fairly recent books are concerned, in case some library has acquired the book since the original search. In the Outlier Union Catalogue periodicals are not kept in the same sequence as books. This is done for several reasons. In the first place, dealing with requests for periodical material is in many ways a specialised job and is best done by trained persons, secondly, the recording of negative information is not quite so simple as in the case of books, since only one or two volumes of a journal are normally asked for at one time, with the result that negative entries for different volumes of a single periodical have to be collected and assembled in order to give a general picture, on one or two cards, of the availability or otherwise of that journal. The exact line of demarcation between books and periodicals is always hard to draw and the uncertainty as to whether certain borderline publications, such as a series of monographs published by a learned society, are to be treated as books or periodicals constitutes one of the drawbacks in separating periodicals from books in a union catalogue.

5 UNION CATALOGUES OF PERIODICALS

In connection with the periodicals section of the Outlier Union Catalogue, it is appropriate here to consider briefly the main union catalogues of periodicals so far produced in this country, namely, the World List of Scientific

Periodicals, the Union Catalogue of Periodicals in the University Libraries of the British Isles and the new British Union Catalogue of Periodicals (B.U.C.O.P.). These catalogues are all to be distinguished from those being built up at the National Central Library by the fact that they are printed and so widely available. The World List was first published in 1925 and later editions appeared in 1934 and 1952. It covers scientific and technical periodicals in 247 libraries in the United Kingdom and Ireland. Only a proportion of the locations given represent loanable sets, however, many libraries that never lend being included. The abbreviations for periodical titles and the serial numbers allotted to journals by the World List have come to be generally accepted and are used in giving references to scientific papers. The Union Catalogue of Periodicals in the University Libraries of the British Isles is a smaller publication than the World List: it includes mainly periodicals not already listed in the World List of Scientific Periodicals and has therefore a humanistic bias. It was compiled at the National Central Library and only one edition has been printed (1937). Much wider in scope than either the World List or the Union Catalogue of Periodicals in University Libraries is the great British Union Catalogue of Periodicals (BUCOP) which lists more than 140,000 journals both British and foreign in some 440 libraries in the United Kingdom. A fair proportion of the locations refer to loanable items. So far three volumes, covering the letters A to R, have appeared. Periodicals are therefore well covered by union catalogues and lists; it is regrettable that the position as regards books is not quite so satisfactory.

6 RUSSIAN AND GERMAN UNION CATALOGUES

Returning now to the National Central Library and its union catalogues, brief mention should be made of two special language union catalogues both created since the war: the Russian and German Union Catalogues. The former serves to record the holdings by British libraries of Russian books and periodicals of all periods. The great majority of libraries likely to contain any Russian material have been included (128 libraries so far), priority in incorporating titles being given to those libraries that will lend. The catalogue is an author catalogue on cards and contains no subject entries; periodicals, as in the Outlier Union Catalogue are kept in a separate sequence from books. Great care is taken to obtain bibliographically correct entries, the cataloguing being done by special Russian language experts who visit the libraries where the material is held. The catalogue therefore has bibliographical value as well as serving as a "finding list". In the case of books the entries are not transliterated, except for the headings, but periodical titles are transliterated according to the rules used by the Library of Congress. It should be noted that the catalogue is limited to works in the Russian language and excludes those in other Slavonic tongues. The German Union Catalogue was designed to record books and periodicals, published in Germany (not in other German speaking countries) during the years 1939 to 1949, held by British libraries. German publications were difficult to obtain at that time, but there now seems less point in segregating these particular years. It is a sheaf catalogue like the National Union Catalogue. Like the Russian Union Catalogue it is compiled and used by language experts, all requests for German material being referred to its editor.

7 POLICY CHANGES

One cannot conclude a survey of union catalogues in Great Britain without saying something of the far reaching policy changes which have taken place in late years. In 1954 the National Central Library and the National Committee on Regional Library Cooperation (which is responsible for dealing with problems of library cooperation affecting the Regional Systems) published jointly a number of Recommendations on Library Cooperation, based partly on suggestions made by Mr. R. [illegible]. Vollans in his well known Report on Library Cooperation in Great Britain (1952). These Recommendations, while leaving unaltered the main structure of library cooperation in Great Britain, laid down the principle that Regional Systems should in future endeavour to become self supporting as regards current British books. They envisaged that when regional self sufficiency (in respect of British books) had been achieved by all Regions it would no longer be necessary to record in the National Union Catalogue entries for British books listed in the British National Bibliography and published after a certain date to be determined in relation to the degree of regional self sufficiency attained. A consequence of closing the National Union Catalogue in respect of British books was that, from the date of "closure", the National Central Library would cease to handle requests from Regional Systems for British books published after that date. The terminal date was fixed provisionally for January 1st, 1958 but has had to be postponed untill January 1st, 1959 mainly because of the unpreparedness of some of the Regions, not all of which have yet adopted subject specialisation or some other mechanism for ensuring adequate coverage of current British books. It must be made clear that this new policy does not mean, in fact, the ending of the National Central Library's union catalogues, for foreign books including American books will continue to be reported by the Regions and so will periodicals, both British and foreign and such entries will continue to be added to the National Union Catalogue. Entries from special libraries will still be recorded in the Outlier Union Catalogue and also, results both positive and negative, of searches for books and periodicals. Of course the effect will be felt progressively as time goes on; in 50 years from now there will (if the proposed closing date 1959 is adhered to) be found in the National Union Catalogue no books published in Great Britain after 1959. The presumption is that all such books will exist in some, or, in the case of little used works, in one or other of the Regional Systems. One point which would seem to justify not recording current British books centrally is that such a large proportion of these are eventually withdrawn from libraries. A system whereby last copies are preserved on a regional basis, so that they are automatically traceable if required, is better, as regards British books, than one which laboriously records the whereabouts of all the many copies held only temporarily by libraries.

8 UNSOLVED PROBLEMS

Finally a word about one or two unsolved problems. One of the most important of these is how to record the vast resources (considered collectively) of the special libraries in this country. The number of these is constantly increasing, there must now be between one and two thousand such libraries, the holdings of which would be well worth recording at the National Central Library. Only a small proportion of these report their new accessions to the National Central Library and an even smaller number belong to Regional Systems and contribute to Regional Catalogues. It should be borne in mind that most libraries cover a much wider field than that which they are specifically created to serve. The need to collect borderline and allied material is the greater the more one aims at completeness in one subject, and that applies even more to periodicals than to books. Now it is precisely the borderline and allied material which most libraries can lend freely, the material on their main subject being nearly always in use. The problem is how to catalogue such a great quantity of material, scattered as it is over a very large number of libraries. It could certainly never be done centrally and if done locally the question arises as to whether some grouping of special libraries by subject would facilitate the work. Another problem is how to complete those regional union catalogues which are not up to date and also how to complete the National Union Catalogue (as far as 1959 only in the case of British books). There is still a good deal of material dating from the 1940's and 1950's which has not yet been incorporated in the Regional Union Catalogues. The corresponding arrears in the National Union Catalogue are considerable but would be much reduced if the titles of all books now withdrawn from the original holding libraries were eliminated. The task of dealing with these withdrawals would, however, be considerable and one wonders whether the gain in locations and in new titles to the National Central Library would justify the time spent in excluding these withdrawals.

As regards the completion of the Regional Union Catalogues, this is evidently desirable, for the Catalogues constitute the only efficient instrument by which Regional Bureaux can locate wanted books in their own Regions, the circulation of lists of desiderata being a very slow method in comparison. Consideration has therefore been given to how this could be done both cheaply and expeditiously, for instance by photographic methods. No wholly satisfactory solution has yet been found, however, as most methods available are either very costly, or are slow and not very efficient. Any photographic method would probably mean visiting a large number of libraries and would involve considerable problems of an organisational nature. One has to bear in mind that the Regions contain on the average about 50-60 libraries each. It is of course possible that mechanical means (e.g. using punched cards or electronic machines) will eventually supersede the present methods, based on copying existing catalogues; already an attempt in this direction is being made in Italy. Such a development would greatly speed up, and in time might make cheaper, the compilation of union catalogues. It might further enable one to make them more selective and would even facilitate their consultation. Thus some of the main drawbacks that have to be faced when embarking upon the creation of one of these essential aids to interlibrary lending might be eliminated, but all this is very problematical and in any case such a development would probably necessitate, as a preliminary, a considerable simplication of the rules for recording material in union catalogues.

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UNIVERSITY LIBRARY BUILDING

S. R. RANGANATHAN

Many library buildings are to be put up in India. Their design should be functional and as for open access. Quiet should be provided for readers and cubicles for research workers. Department of Library Science and Seminar and group discussion rooms should be provided. A modular unit of one metre or three feet should be adopted for internal dimensions. Standard units are prescribed for area per reader, number of volumes per square metre in stack-room, counter, and all the fittings and furniture. Dry construction should be used to provide for mobility of arrangement of rooms etc.

1 INTRODUCTION

11 Evolution of Library Service

All the world over, library service for the learned few developed earlier than that for the masses. University Libraries too developed first for the use of the teachers and research workers rather than for the use of the common undergraduate students. The advent of democracy during the last hundred years led to the development of library service for the masses. The advent of the New Education conceived by John Dewey about fifty years ago led to the extension of the service of the university libraries to the common undergraduate students. As a corollary, college and school libraries too came to be developed. But in some countries of the West, the sequence of development has been first university library service for teachers and research workers, then public library service for the common man, and last university, college, and school library service for the student population. The numerically dominant has been the public library.

12 Evolution of Library Architecture

Library architecture in those countries was therefore first developed in the public library sphere. This trend was intensified in Great Britain and America by the phenomenal library gifts of Andrew Carnegie. The university libraries have had to inherit buildings erected long before thought was turned on the distinctive requirements of library architecture. However, the new university library buildings are having the benefit of all the distinctive ideas developed in the architecture of public library buildings.

13 Ceiling to Size

Business libraries and libraries for government departments are a more recent development. Intensive documentation service for a relatively small clientele and ruthless weeding out of every out-moded reading material — be they books or periodicals — have led to a rapidly-reached limit to the size of such libraries. This experience of business libraries is leading to a new approach in respect of all service-libraries — academic or public. They too concede the possibility and the desirability of weeding out out-moded books. The idea is to have them sent for deposit in a dormitory library, to meet the occasional demands from antiquarian readers. To facilitate this, each country should have State or Regional and National Central Libraries, to provide accommodation for such pooled dormitory collections. As applied to Library Building, the Fifth Law of Library Science — A Library is a Growing Organism — has different messages to the State or Regional and National Central Libraries on the one hand and all the service-libraries on the other. To the former it says, "Keep growing for ever as a child". To the service libraries, on the other hand, it says, "Your growth should soon be like that of an adult, by replacement and not by increase in size". In other words, a limit is now accepted to the size of the building for all kinds of service-libraries.

14 India's Opportunity

India has been, for some centuries, lying inactive in a state of cultural exhaustion. It was then that the above-mentioned evolution took place casually elsewhere. Its renascence and library consciousness have begun only now, after thought on library architecture has reached a clarified and rational basis elsewhere. India should take advantage of this and avoid the hazards of drift, trial and error, and blind imitation of the discarded designs for library buildings in other lands. India should indeed leap ahead of other countries with all its freshness of outlook. This is India's opportunity.

15 Evolution of Library Service in India

There is an inversion in the evolution of library service in India to-day. Unlike in the West, it is university library service that has evolved earlier than public library service. This has been due to political reasons. In the British period, the government needed university graduates for its lower civil service at first and also for its higher civil service later. It was not interested in mass education either for children or for adults. As a result, universities were developed better than schools; and public library service was not at all thought of. Even in universities, libraries were non-existent till about fifty years ago.

16 Semi-Self-Government

With the Montford Act came semi-self-government to the provinces and the transfer of education to responsible elected ministers of Indian nationality. But the finance for universal elementary education was not provided. The idea of universal public library service could not therefore arise. But the ministers did endeavour to lift the universities from the position of mere examining bodies which naturally had not thought of university libraries. As a result of the new Act, universities were gradually permeated by a ferment which worked in the direction of introducing an element of higher teaching and research. This naturally brought in its train the demand for university libraries. Some of the universities did establish libraries of their own. But most of these imitated the old British tradition of putting them in charge of one of the teachers.

17 Lead of the Madras University

It was the University of Madras that first recognised that maintenance of proper library service is a professional calling if the university library should develop along right lines into a service-library capable of intimate resonance with the research aspiration and activities of the teachers and the taught alike. This far-sighted action of the University of Madras in the appointing of a university librarian with the status comparable to that of university teachers and with professional and academic qualifications of a high order marks a turning point in the library history of India. One of the results of placing the university library in charge of a professional librarian, investing him with responsibility and giving him freedom and initiative has been the functional designing of the university library building. Indeed in relation to the world-standard of library architecture prevailing in the twenties of this century, the design of the library building of the Madras University can be placed in the front rank.

18 After Independence

The influence of the Madras University Library permeated all through India. Its School of Library Science, established in 1929 with the university librarian at its head, contributed to the extension of its influence and to the strengthening of the library-consciousness emerging spontaneously in some of the other university centres. With the political independence giving free play to our renascence and the establishment of the University Grants Commission which gives aid to the development of university libraries, university library architecture has gained in importance. It has assumed great urgency. That is the reason for confining this paper to university library architecture. But the basic standard-units are largely the same for public library building as well as for university library building. Therefore, many of the standards stated here will be applicable to public library architecture also. The difference will be largely in size and in the provision of research cubicles. Another paper will deal with the special features and the overall picture of public library architecture.

2 BASIC PRINCIPLES

21 Standardisation and Modular Unit

It is now commonly accepted all over the world that it helps national economy if a national — even an international — standard is adopted in respect of the basic dimensions involved in any construction. These dimensions should be based on a modular unit. All dimensions should be multiples or submultiples of this modular unit. The dimensions concern every piece of library furniture — the small primary charging tray, the final charging tray, the primary work-box for the sections, the trays in the work tables, the work tables themselves, the catalogue cabinets, the book-trolleys, the book-racks, the window-sills, the reader's tables, the circulation counter, the turn-stile of the circulation counter, the height of the book rack, the height of the windows and doors, and so on. The dimensions of each of these should register with one another. It will be a daily headache for the library staff if they do not so register. The cost of production, servicing, and replacement also will swell unnecessarily if they do not all conform to standard dimensions.

22 Simplification and Single Modular Unit

Next only to standardisation comes simplification. By simplification is meant having the smallest possible number of modular units of dimensions. Simplification reduces still further the cost of production, servicing, and replacement of units and parts. Millions of dollars are said to have been saved in the United States by reducing the standard varieties and sizes for common brick from 34 to 1. So also it has been possible to reduce drastically the types and sizes for milk bottles and standard for their caps to one. It is desirable and possible to use three feet or one metre as the only modular unit for the inner dimensions of all the rooms, fittings and furniture in the library.

23 No Bar to Originality

The adoption of the single modular unit for the dimensions involved in a library building, its fittings, and furniture does not at all prove a bar to originality in designing. In fact, library architecture, as such, is less than fifty years old. It is quite young. There is a great demand for considerable creative work to be put into it. I feel its importance fully; and yet I recommend the adoption of a single modular unit of one metre for all inner dimensions, as I am convinced that its adoption will not at all take away from the freedom of the creative architect.

24 Monumental vs Functional Library Building

Another issue that should be settled at the very outset is the one of monumental vs functional. So far as the external treatment, the elevation, and the section are concerned, full weight may be given to the "monumental". But in regard to the inner lay-out and the utilisation of the inner space; it should be absolutely functional. It must be remembered that the inside of a library is a silent intellectual workshop, into which no sight-seers will be allowed. There will be no general traffic, except the traffic of the intellectual workers themselves. Therefore, the inner architectural features should be designed so as to secure comfort and quiet to the readers, without any eye to impress on tourist traffic. The overlooking of this principle reduced library service to a mockery in a university library. A big high rotunda with excellent echoing qualities, the hanging of huge portraits in the inside, and the outlook of the authorities used to bring into the reading hall crowds of sight-seers with babies in arms. Again, the librarian and the staff of the Manchester Public Library have bitter complaints about the long distance they are obliged to walk to consult one another, as they are all distributed along the circumference of a rotunda with the stack-room and the reading room in the centre.

241 The Inference

Huge domes, massive ornamental staircases occupying the most accessible part of the building, high ceilings with paintings, wide windows, circular design, square design and butter-fly design, which make extension difficult, do not generally go with the functional design of a library building. This does not imply any objection to turrets, towers and domes above the roof level — i.e. outside the functional part of the building or to any external treatment to give the library building the character, the dignity, and the beauty without any denial to the freedom of a creative architect.

25 Single Level

Each floor of the library building should be in one single level. There should be no threshold even, anywhere in the floor. It should be possible to push a loaded book-trolley from any point in a floor to any other point without any transhipment or the dangers due to sloping surfaces and curbs to be negotiated. To realise the great importance of this principle, one should remember that more than a thousand volumes will be used by readers each day in the different parts of the library building. These should be taken back to their places in the stack-room. The newly received books and periodicals also will have to be moved from the administrative wing into the stack-room and the text-book room. The recurring cost of carrying them by hand or transhipping them from one level to another will be a waste. This common-sense principle has to be stated because it is ignored. For example, for some mysterious reason or for no reason, in a university library building being now put up a few steps separate the level of the stack-room and the level of the other rooms. This fault was found in the original design for the Madras University Library Building proposed forty years ago. The repetition of this fault even to-day proves that this architectural idea concerning libraries had yet to be brought home in our country.

251 Lift in the Stack-Room

Movement from one floor to another should be through electric lifts provided in the Stack-Room. Another corollary is that the third tier of the Stack-Room should be in the same level as the first floor of the rest of the building. The reason for an intermediate tier in the stack-room will become clear in section 262.

26 Design for Open Access

Open access means allowing the readers to walk amidst the books in the stack-room and take away any of the books from the shelves either to a reading room for study or to the issue counter to get them issued for study at home. This system was devised about fifty years ago in the West. It has increased the use of books manifold. It has thereby procured a much greater social dividend than before, on the public money locked up in books in the library system of a country. The Madras University Library introduced the system in 1925 and its Library School propagated it. Many libraries in India have already adopted the open access system. The others will have to fall in line with this world-trend sooner or later. For, all the Five Laws of Library Science unanimously uphold open access. A building designed for open access can also function on "Closed Basis". But a building designed for "Closed Basis" will not admit of open access. It is therefore essential that every new library building should be designed as for open access.

261 Protection of Doors and Windows for Safety of Books

The freedom given within the building of an open access library will tempt abuse, unless safe-guards are provided in the design of the library building. Stated in general terms, there should be no opportunity for unauthorised removal of books through windows, doors or other openings in the outer walls of the buildings. Therefore, all the windows and doors opening out should be fitted with locked or fixed weld-mesh shutters with meshes not more than 10 square cms ar 2 square inches in area, except for the two doors, used for coming into and going out of the building. Moreover, these doors must be on either side of the issue counter, which must be at the very entrance. No person should be able to enter the library or leave the library except through the turn-stiles controlled and operated by the Library Assistant inside the counter-enclosure. This will ensure the automatic enforcement of the queue system. As a result of this, gangways leading to the entrance turn-stile and away from the exit turn-stile need not be more than 1 metre or 3 feet wide.

2611 No-Man's Zone

On the outer side of the gangways for entrance and exit, there should be subsidiary counters. These will have to be used in unusual rush-hours. They will also serve as no-man's zones, preventing persons inside the library from passing on books to any person standing in the entrance or exit gangways. Moreover, these additional enclosures will also be useful in assembling the large number of books which may be taken out or returned to the library at one time by the departments of study and research.

262 Tier-Height in Stack-Room for Safety of Readers

Open access throws some responsibility on libraries, in respect of the Law of Torts. There should not be need for readers to go up ladders to reach at books kept on tall book-racks. For, all readers will not be trained athletes to climb-up ladders. The inference is that book-racks should not exceed 7 feet in height. This leads to another inference. The ceiling of a tier in a stack-room should not be more than 9 feet high. Otherwise much space will be wasted. This is the reason for making the level of the second floor of the other parts of the library building register with the floor of the third tier of the stack-room.

263 Placing of Windows and Comfort to Readers

2631 Stack-Room

To provide for the comfort of the readers browsing in the stack-room, there should be a minimum of 4-1/2 feet of width in the cross-gangways. To get these gangways well-lighted, the windows should all open into them. It will be an additional advantage if the tier-floors are all of glass. Then, the light through the entire height of the windows right up to the topmost tier will reach the ground-floor, which will be most used by readers. For proper lighting during the night, the gangway lights should have reflectors which bathe the backs of books with light and save the eyes of the readers from direct light.

2632 Reading Room

Let it be repeated that a library is a quiet intellectual work-shop where there should be the least distraction to readers. One inference is that readers should not be seated on both sides of the table, facing one another. Seating readers on one side of the table only puts a limit to the depth of the table. It need not exceed two feet. To get the best natural light for reading, it is desirable to match the position of the windows and the intervening wall-spaces with the two feet deep table. Alternating of three feet of window and three feet of wall space is indicated.

264 Flow of Traffic and Quiet for Readers

The seats of the readers should be so provided that they face away from the traffic entering and leaving the library at the counter. Further, the persons going to the different parts of the building should not be allowed to walk amidst readers. They should be made to cross the reading room behind the backs of the readers. And verandahs should be provided outside the reading rooms but inside the building for the people to pass from room to room.

265 Research Cubicles

In a University Library, it is necessary to provide extra quiet and comfort to readers deeply engaged in research. It should be possible for them to continue to keep on their tables, for several days, the reading materials collected for the pursuit of their investigation. To return them and collect them again daily will be a violation of the Fourth Law of Library Science-Save the time of the reader. Further it should be possible for them to be all by themselves and relax at intervals, as they will have to work at their table for long hours each day. It should also be possible for them to use their type-writers. All these facilities cannot be allowed in the general reading room. To secure them for research workers, the solution found on the architectural side is to provide research cubicles, one for each reader with an area of about 8 square metres — say a room of 4 into 2 metres or 12 into 6 feet. In a University library, it is desirable for the number of such research cubicles to be about 20 percent of the number of teachers and research fellows and advanced students.

266 Sun-Breakers and Sun-Shades

It is necessary to minimise the effect of solar heat on readers, in order to enable them to do their intellectual work for a long stretch of time. This requires the provision of sun-breakers to all the windows opening out into the east or the west; or in the alternative, verandahs should surround all the eastern and the western walls. It is also necessary to provide sun-shades for the windows opening into the south or the north. In places to the north of the Vindya Mountains, there may not be need to provide sun-shades on the northern side.

27 Protection to Books Against Sun and Rain

271 Orientation of Stack-Room and Avoidance of Direct Sun

The longer axis of the Stack-Room should run East to West. There will then be no need for windows on the eastern or the western walls. This will prevent direct sun from falling on the books in the fore-noons and the afternoons.

272 Gangway Along North and South Walls and Avoidance of Direct Sun

To prevent the southern and the northern sun from falling on the backs of books, the stack-room should have a gangway of about a metre or three feet of width all along the southern and the northern walls. There are also other uses for these two gangways. One of them will be used as passage down the stack-room. The other gangway will have tables in continuation of each line of book racks. The readers can put their books on them for reference and turn their pages quickly to decide whether they are worth being taken out for study. Moreover, this provision of browsing table in the stack-room will be of great help to research workers in looking up a number of bibliographic references for listing and verification. Therefore, the gangway down the northern wall also is necessary, even in places north of the Vindhya Mountains, though as a protection against sun the southern gangway alone might be sufficient.

273 Convection-Slits in the Floors of the Tiers

It is also desirable to provide slits between the bottom of the book racks in all the upper tier to provide space for the free convection of air. The book-racks being half-a-metre in depth, the slits may well be about a quarter of a metre in width.

274 Centre-Hung Glass Shutters

There is no denying the need for preventing rain water from falling on books. The provision of the gangways along the walls is a help in this matter. But at times of storm and torrential rains, even the gangway may prove insufficient. It is therefore, desirable to re-inforce the protection. This is done by making the glass-shutters of the windows centre-hung on a horizontal axis. Then, the shutters can be left at a suitable slope during the rainy season. To prevent the glass shutters from obstructing the passage through the gangway while in a horizontal position, they should be made in two or three sections so that no section projects into the gangway when in a horizontal position. The number of sections will be determined by the thickness of the wall and the height of the window. If necessary a section at the top may be kept fixed, if the smallness of the thickness of the wall requires it.

275 Hollow Walls

By making the walls of the stack-room hollow, a better insulation from solar heat may be secured. This can be done since the walls of the stack-room are not load-bearing.

276 Air-Conditioning

All these specifications for the treatment of the windows of the stack-room will be bye-passed by air-conditioning. It will also protect the books from the dust which is a serious problem in most places. Further, it will make it possible to maintain the temperature and the humidity of the stack-room at an optimium which will minimise the breeding of insects and fungi, injurious to books. Paper and the covering material of the binding will also preserve better if there is air-conditioning. The uneven contraction and extension of the paste used in binding will be minimised; and the cracking and warping of the binding will be eliminated.

28 Dry Construction

. The use of a single modular unit in library architecture should be put to the maximum possible use by allowing freedom for forming rooms and passages at any point, at any time, to any number of modules. For this purpose, there should be no rigid wall other than external walls forming the cage for the building as a whole. In fact, there should in a sense be only large halls — one in each tier of the stack-room and one in each floor of each of the wings of the main building. The formation of the rooms should be with easily removable portable panels of standard dimensions. It should be possible to shift them as desired without the need to break down plastered masonary walls and rebuild them in the conventional way. Traditional construction should give way to dry construction.

3 DESIRABLE ADJUNCTS

31 Newly Emerging Services

The distinctive function of a library is to feed the intellect and not the body or the ordinary emotions. Unlike the bodily and the emotional needs, intellectual needs are not compelling. All the same the feeding of the intellect is essential for personal and social well-being and progress. Therefore, as a social institution, the library is charged with the duty of persuading people to accept book-service, for intellectual development, useful and necessary information, and emotional sublimation. The carrying out of this social obligation makes it necessary for a library to provide certain services and conveniences, which were not associated with library-service in the past. These newly emerging services are, therefore, called extension services.

32 Extension Service

It may be stated that Extension Service has as its over-all objective the fulfilment of the Second and Third Laws of Library Science. It seeks to make every person become aware of the books which could help him in his well-being, development, and entertainment. It also seeks to bring into the sphere of influence of the library, every person in the community, so that the probability for every document getting its reader may be increased. It further provides amenities to readers in order to make them feel comfortable while reading in the library, and further, feel pulled to continue to be a user of the library. It recognises the fact that while a person normally prefers to read in privacy by himself, now and again he feels the need and the urge

1 to read in company;

2 to discuss in groups so as to get his field of interest relationally extended and his coverage of literature enriched and deepened; and

3 to listen to orientation talks and inspiring lectures by savants in different subjects to get his curiousity stimulated and his emotions sublimated.

The modern library, therefore, provides for all such needs and urges of readers to be satisfied.

33 Impact of Extension Service on Architecture

These newly emerging library practices and outlook call for additional rooms in a library building. These are:-

1 Group-study rooms of small size;

2 Seminar rooms of intermediate size for discussion in larger groups;

3 Conference room of large size with audio-visual and other equipment for all modern methods of communication and demonstration;

4 Open air reading room for the cooler hours of the day, for which enclosed quadrangles should be automatically formed in the layout of the wings of the library building;

5 An exhibition room for bringing to the attention of potential readers from time to time beautiful books and manuscripts, new books, worth-while books, forgotten old books, and books on topical themes as a means of converting into book-lovers persons without interest in books;

6 Public conveniences of cleanest kind at suitable points within the library premises;

7 Canteen within the library premises, so that the serious reader, engaged in an all-day-long pursuit, need not go out for creature-needs and thereby run the risk of losing the mental-set built up during study;

8 A co-operative stationery and book shop where the requirements of readers can be had and their urge to own certain books, created while reading in the library, can be satisfied when it is still nascent.

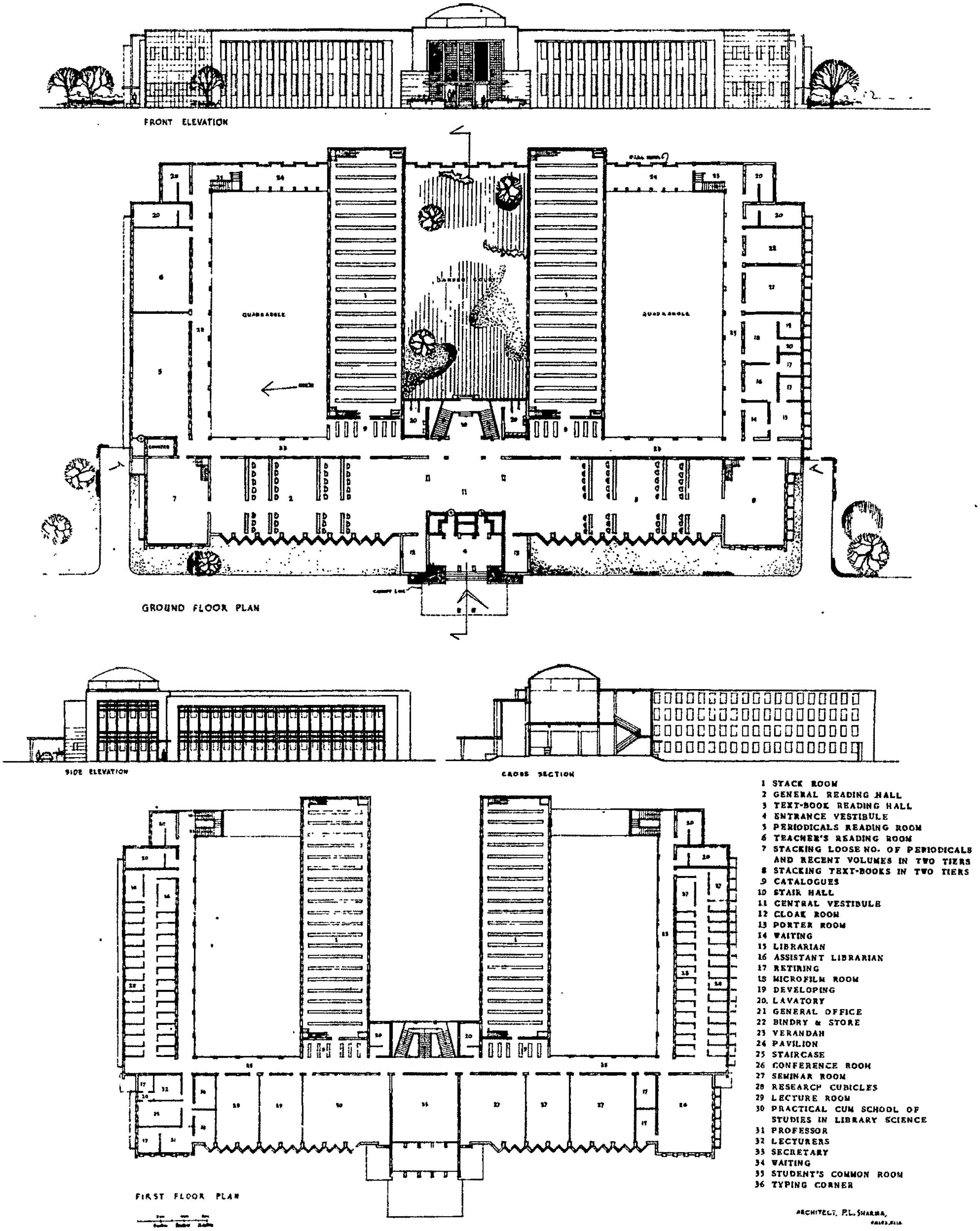
34 Amenities for Library Staff

A modern library has to be kept open for long hours — all the normal waking hours of humanity — say from 7 a.m. to 10 p.m. in our tropical conditions and our social habits. Apart from long hours, it has to function aggressively and serve intensively. Such a service and work in a modern library, which functions up, are exacting both mentally and physically. To get the best out of the staff under these conditions, we must remember the Taylor-Principle of alternating relaxation with concentrated work. To neglect the provision for such a relaxation of the staff is unwise and bad in management. It is pennywise and pound-foolish. Even factories, where work is largely non-intellectual have realised this principle. They have found that money spent in relaxation-rooms brings in a good return in the form of greater and better turn-over. The libraries too are now beginning to realise this. A library building should, therefore, provide an adequate relaxation-room for the staff. In this connection, the accommodation for the care-taker of the building, and especially for the watchmen on night duty, should be specially remembered. Naturally, the rooms for the watchmen should be accessible when the library building is locked.

35 School of Studies in Library Science

While all the above adjuncts to a library building are necessary for all kinds of libraries, a university library should also provide adequate accommodation for the School of Studies in Library Science. Its requirements will be:

1 Two lecture rooms each with capacity for a class of 25;



1 STACK ROOM
2 GENERAL READING HALL
3 TEXT-BOOK READING HALL
4 ENTRANCE VESTIBULE
5 PERIODICALS READING ROOM
6 TEACHER'S READING ROOM
7 STACKING LOOSE NO. OF PERIODICALS AND RECENT VOLUMES IN TWO TIERS
8 STACKING TEXT-BOOKS IN TWO TIERS
9 CATALOGUES
10 STAIR HALL
11 CENTRAL VESTIBULE
12 CLOAK ROOM
13 PORTER ROOM
14 WAITING
15 LIBRARIAN
16 ASSISTANT LIBRARIAN
17 RETIRING
18 MICROFILM ROOM
19 DEVELOPING
20. LAVATORY
21 GENERAL OFFICE
22 BINDRY & STORE
23 VERANDAH
24 PAVILION
25 STAIRCASE
26 CONFERENCE ROOM
27 SEMINAR ROOM
28 RESEARCH CUBICLES
29 LECTURE ROOM
30 PRACTICAL CUM SCHOOL OF STUDIES IN LIBRARY SCIENCE
31 PROFESSOR
32 LECTURERS
33 SECRETARY
34 WAITING
35 STUDENT'S COMMON ROOM
36 TYPING CORNER

ARCHITECT, P.L. SHARMA,

The author is indebted to Shri P.L. Sharma for the two drawings.

2 A practical room with capacity for 50;

3 A students' common room;

4 Room for the professor, who is at the head of the School;

5 Rooms for three additional teachers;

6 Room for the secretariate of the School as an annex to the room of the professor; and

7 Visitor's room as an annex to the secretariate room.

4 BASIC DATA

41 Modular unit for internal dimensions = 1 metre (3 feet).

42 Net dimension = The internal dimension actually in use.

43 Gross dimensions = The net dimension increased by other requirements such as gangways, clearance space, thickness of walls, supports, timber-pieces, etc.

Examples

Junior	Undergraduate student
Senior	Teacher, Research fellow or Post-Graduate student

Entity	Net Area in		Other Requirements	Gross Area in	
	square metre	square feet		square metre	square feet
1 Book standing on a unit book-rack	2 x .5 = 1	6 x 1.5 = 9	Long and Cross gangways and thickness of uprights	3 x 2 = 6	9 x 6 = 54
2 Reader in junior reading room with his table and chair	1.3 x .83 = 1.1	4 x 2.5 = 10	Long and Cross gangways	2 x 1 = 2	6 x 3 = 18
3 Reader in senior reading room with his table and chair	1.3 x 1 = 1.3	4 x 3 = 12	Long and Cross gangways	2 x 1.25 = 2.5	6 x 3.75 = 22.5
4 Research cubicle	4 x 1.8 = 7.2	12 x 5.5 = 66	Gangways and thickness of the partition	5 x 2 = 10	15 x 6 = 90

44 Width of Gangway

Gangway	Room	Width in	
		metre	feet
1 Long	Reading Room	2	6
2 Long	Stack Room	1	3
3 Cross	Reading Room	.7	2
4 Cross	Stack Room	1.5	4.5

45 Dimensions of Rooms

Room	Dimensions in	
	Metre	Feet
1 Stack Room		
Length	2n	6n
Width	3 to 12	9 to 36
Height (per tier)	3	9
2 Any other room		
Length	2n	6n
Width	8 to 12	24 to 36
Height	3 to 6	9 to 18

Note:- n is any integer

46 Dimensions of Furniture

Category	In metre	In feet
1 Reading room table	2 x .75 x .83	6 x 2 x 2.5
2 Stack room table and reading room table (half-size)	1 x .75 x .83	3 x 2 x 2.5
3 Office table	2 x 1 x .83	6 x 3 x 2.5
4 Counter (Gross)	6 x 4 x 1.33	18 x 12 x 4
5 Counter (net external)	4 x 4 x 1.33	12 x 12 x 4
6 Counter (net internal)	3 x 3 x 1	9 x 9 x 3
7 Supplementary Counter (net external)	3 x 3 x 1	9 x 9 x 3
8 Book-rack without books (net)	2.33 x 2.17 x .5	7 x 6.5 x 1.5
9 Book-rack with books (net)	2.5 x 2.17 x .5	7.5 x 6.5 x 1.5
10 Shelf-plank	1 x .24 x .03	3 x 8.5" x 1"
11 Book Trolley	1 x .5 x .83	3 x 1.5 x 2.5
12 Frame for Bay guide & Gangway guide (gross dimensions)	.5 x .33 x .03	1.5 x 1 x 1"
13 Box for card (inner dimensions) (Lower part = Upper part)	.14 x .08 x .08	5" x 3" x 3"
14 Tray for cards (inner dimensions)	.5 x .14 x .04 (for .08)	1.5 x 5" x 1.5" (for 3")
15 Cabinet for cards. Four columns of 6 trays each (external dimensions)	.6 x 1.33 x .53	1.8 x 4 x 1.6

47 Sizes of Special Rooms

(Gross including partitions only)

For use of	In metre	In feet
1 Librarian, Deputy librarian, Assistant librarian, Professor and other teachers	6 x 5	18 x 15
2 Secretary to librarian	3 x 5	9 x 15
3 Secretariate of Library School	6 x 5	18 x 15
4 Visitors to each of Librarian and Professor	3 x 5	9 x 15
5 Member of the staff working behind the screen (including gangways)	3 x 5	9 x 15
6 Class Room for 24 students and Seminar room	10 x 9	30 x 27
7 Practical room	10 x 18	30 x 54
8 Group discussion room	4 x 4	12 x 12
9 Conference Room	10 x 18	30 x 54
10 Stack-Room	1 square metre for 150 volumes	1 square foot for 15 volumes

5 FACTORS FOR INVESTIGATION

The following factors require investigation in the context of our climatic conditions, habits of people, and economic feasibility:

1. Interior decoration and choice of colour, in relation to light and colour-harmony for reducing eye-strain and improving feeling of pleasantness;
2. Lighting, reduction of glare during daytime, device in artificial light to reduce the range of amplitude of the strain on eye-muscles;
3. Flooring material in relation to noise, slipperiness, and ease of cleaning;
4. Air-conditioning for keeping off dust, maintaining optimum temperature and humidity in order to increase the life of the physique of books and to decrease the onset of exhaustion while reading; and
5. Glass partition for securing an overall view without disturbance.

CALCUTTA CENTRAL LIBRARY. UNIVERSITY

POSTULATIONAL APPROACH TO FACETED CLASSIFICATION

DEPTH CLASSIFICATION 29

S. R. RANGANATHAN

Examines the what of classification. Formulates the three planes of work. States its purposes. Sets forth a postulational approach. Enunciates the eight postulates for the idea plane and the nine for the notational plane. States the seven steps in the work of classifying. Explains how the Colon Classification is analytico-synthetic. Gives examples of classifying by that scheme. Describes the structure of the Colon schedules for Medicine. Defines depth classification. Describes the work in progress to fit the Colon Classification for depth classification and documentation work. Explains the telescoping of the schedules for systems and specials in medicine, and for organs. Gives examples of phase and inter-facet relation. Indicates the future work to be done.

0 INTRODUCTION

01 Library Classification

The Colon Classification has cut new ground. To see this, it is desirable to examine the what, the purpose, and the how of classification, as a background study. Library classification consists, in succession, of knowledge classification and book classification. Book classification is concerned with the helpful arrangement of all the documents embodying one and the same subject, i. e. the same unit of knowledge. The characteristics used in book classification pertain to the language or other medium of expression, the form of exposition, the author expounding it, the physical feature of the document embodying the unit of knowledge, and a few other external factors. These are examined in detail in the Prolegomena. (1). Knowledge classification is concerned with the arrangement of the units of knowledge themselves. In what follows, the term classification stands only for knowledge classification.

02 The What of Classification

Classification seeks to

1 Arrange units of knowledge in a helpful sequence;

2 Represent the names of subjects by a system of ordinal numbers, called Class Numbers - in order to mechanise the maintenance of the sequence; and

3 Provide for the reception of newly emerging units of knowledge in a helpful place among the already existing units, and fix class numbers for them without disturbing those assigned already.

03 Universe of Knowledge

The third factor mentioned in section 02 arises out of the nature of the universe of knowledge. It is infinite. It is a dynamic continuum. It is continuously throwing forth new units. Therefore an exhaustive advance enumeration comprehending all the units of knowledge of the past, present and future is not possible. In other words, an enumerative system of classification will not meet the situation. Enumeration should be confined to a few sets of a few seminal or fundamental constituent categories, instead of the subject themselves. Subjects should be taken to be derived composite categories, i.e. should be regarded as if built by synthesising the seminal constituent categories. This is explained in detail in the Prolegomena (2).

04 Terminology

The fundamental constituent category may be a Main Class or a Canonical Class, or an Isolate. 'Basic Class' is the generic term used to denote a Main Class and a Canonical Class. A Basic Class can be a subject by itself. But an Isolate cannot be a subject by itself. A subject will be formed only if it is taken along with an appropriate basic class. For example, Zoology and Medicine are basic classes. Each of them is a subject by itself. Leg and Head are isolates. Neither is a subject by itself. But Leg of Animal as well as Leg of Man is a subject. So it is with Head also. Again Anatomy is an isolate. It is not a subject by itself. But Anatomy of Animal as well as Anatomy of Man is a subject. Several isolates may go with a basic class to form a subject. For example, the Anatomy of the Head of Man is a subject. Facet is the generic term used to denote a basic class, or an isolate. Corresponding to the terms Basic Class, Isolate Idea, and Facet Idea in the idea plane, we can use the terms Basic Subject, Isolate Term, and a Facet Term in the verbal plane. So also, we can use the terms Basic Number, Isolate number, and Facet number in the notational plane.

05 The Three Planes of Work

Work in the designing of a scheme of classification and the applying of it in classifying the universe of knowledge lies in the three planes - Idea Plane, Verbal Plane, and Notational Plane. The elements in the verbal plane will vary with the natural language used. The elements in the notational plane will vary with the scheme of classification used. The elements in the idea plane are independent of these. It is inherent in the idea plane. It is paramount, whatever be the natural language used or the classification scheme used. The notational plane should be designed to implement all the findings in the idea plane in regard to the preferred helpful sequence of subjects, basic classes, isolates, facets, and all the classes arising therefrom.

06 The Purpose of Classification

The purpose of classification is manifold. They are the following:

1. Storage of information in a helpful sequence. The tremendous rate of production of documents to-day makes this a formidable task.
2. Retrieval of stored information on demand or in anticipation, expeditiously, exhaustively, and pin-pointedly without the admixture of any irrelevant information, i.e. noise.

   To-day there is much wastage in the research potential of humanity, because information already collected and stored is not made available. This is due to the vastness of the quantity of information stored.
3. While classifying a document, seizing quickly and unerringly and in a systematic and canalised way all its facets — the basic class, the anteriorising common isolates, and the personality, matter, and energy isolates at all levels and in all rounds, and the space and time isolates, if any.

   Oridinarily, classifying is practised as a hit or miss affair. The postulational approach makes a systematic and canalised approach possible, on account of the definite steps in classifying, going with that approach.
4. By a participating and systematic and canalised conversation, with the reader, finding out with expedition and discrimination the exact and exhaustive formulation of his requirement in respect of the basic class and all the other facets in all the rounds and at all the levels.

   Ordinarily, much of the formulation is left to the reader himself. It has been shown through a series of case studies in the Reference service (3) that even the best of readers are often unable to formulate their requirements precisely. This is easily explained in the light of the psychology of readers and particularly of those absorbed in their own work.

5. Making an everywhere-balanced selection of books and other reading materials for a library, in close correlation to the interests of its clientele.
6. Forming from time to time and in anticipation of demand, special topical sequences in the library to meet the needs of particular groups of readers exactly, exhaustively, and without loss of reader's time and tempo.
7. Laying bare the fallow fields in the universe of knowledge — that is, subjects without sufficient literary warrant — and thus helping to bring them under cultivation.

061 Search through Machinery

There is now considerable activity in the designing of machinery for literature-search. Retrieval of information with machinery can only eliminate the time-lag in the process of search. But even here, "The analysis of the subject content of documents is a necessary prerequisite to rendering them amenable to identification by machine-searching operation" (4). The other purposes of classification cannot be achieved by machinery. The library professesion should therefore give up the nâieve mood of resting on its oars saying "The engineers and their machinery have come and taken possession. We can hereafter have an easy time and ignore classification and escape all the bother it gives".

07 Demand of the Laws of Library Science

The first six of the purposes of classification flow from the Five Laws of Library Sciences (5). These are the normative principles from which can be derived all the library policies and with which can be forged all the library techniques. These will have to be varied from time to time to suit the boundary conditions set by the social conditions, ideologies, and pressure prevailing at the time. The seventh is the peak of purposes of library service itself. It amounts to helping the further cultivation of the universe of knowledge and the creation of new units of knowledge.

08 The How of the Colon Classification

The Colon Classification bases all its work on a set of postulates. Postulates are principles, or propositions, or directives, used as the basis for the development of any system of thought or the forging and the working of any system of technique. Postulates do not admit of being categorised as true or false. They can only be assayed as helpful or unhelpful to the purpose for which they are used. There are postulates pertaining respectively to the idea plane and the notational plane. The postulates for the idea plane are intrinsic to the universe of knowledge. They should therefore be helpful to any scheme of classification. But some of the postulates for the notational plane may vary with the scheme. Moreover, any postulate may have to be changed if any change coming over the social purpose of the library service demands it.

1 POSTULATIONAL APPROACH

11 Postulates for the Idea Plane

The following are the postulates forming the basis for work in the idea plane in the designing and the applying of a scheme of classification.

Postulate 11 Personality, Matter, Energy, Space and Time are the fundamental categories.

These terms carry no metaphysical significance. Their connotation will become clear in the context of the schedules of classification and of the statements containing them. The meaning of 'Time' is the usual one. 'Space' is used in the sense of geographical area. 'Energy' denotes action of any kind and in addition certain concepts such as structure, function, disease or wrong functioning, evolution, and development. 'Matter' will not give any difficilty. It denotes, generally speaking, the material used in doing a piece of work or going into the build of some entity, as its constituent. 'Personality' may give some difficulty at the beginning. One way of recognising it is negative, viz., taking it to be the residue left after the other four categories are identified and separated. A positive way will be to find out if it has, within the context, an individuality of its own, such as shape and other physical features independent of those of the materials going into its build, and a function or utility of its own. For example, in the context of the subject Medicine, each of the functional and regional organs of the human body is a manifestation of the fundamental category Personality. Thus Hand is a manifestation of Personality. So is Finger forming an organ of the hand. So also is the Nail forming an organ of the finger.

Postulate 12 Arranged in the decreasing sequence of their relative concreteness, the five fundamental categories fall in the sequence Personality, Matter, Energy, Space, and Time.

This postulate implies a certain arrangement of documents, which proves helpful. To illustrate with documents pertaining to the class Medicine, the following will be the arrangement: — Treatises and text-books of a general kind; Descriptive and historical account of the medical conditions in different geographical areas; Documents of a general nature on topics such as anatomy, physiology, disease, public health, and embryology; and finally Documents dealing successively with particular organs such as ears, eyes, digestive system, circulatory system, etc. A similar arrangement will persist also in respect of any host class other than a basic class. For example, immediately after the general treatises and text-books on respiratory diseases will come in succession Diagnosis, Pathology, Treatment etc in general; and thereafter the different diseases in succession.

Postulate 13 Basic classes are those enumerated as such by the scheme of classification.

The basic classes are virtually the same in all schemes. It is not however so in respect of the Main Classes and the Canonical Classes. This is often due to the freedom or restriction imposed by the notational system used. In the Colon Classification, the Main Classes are enumerated in chapter 1 of its schedules. And the Canonical Classes are enumerated at the beginning of chapters B, C, H, M, N, and R of its schedules. The main classes and the canonical classes together form the basic classes. In particular, Medicine is given as a main class. It is represented by L.

Postulate 14 Anteriorising common isolates are those enumerated as such by the scheme of classification.

As viewed from the idea plane, the anteriorising common isolates should be the same in all schemes of classification. But this concept had not been thought out objectively by the designers of most of the schemes. Therefore, there is some unhelpful cloudiness in this matter. A full discussion of this will be found in the Review of documentation of FID (6). The Colon Classification has designed the anteriorising common isolates objectively and with care. They are enumerated in schedules 21, 22, and 23 of chapter 2 of its schedules.

Postulate 15 Every subject includes a basic class. It may also include isolates which are manifestations of one or more of the five fundamental categories, and also anteriorising common isolates.

It is the acceptance of this postulate as the basis, that fits the Colon Classification to the depth classification needed in documentation work and makes the practical work of classification and the assessing of reader's requirements, in a systematic, canalised, and objective manner.

Postulate 16 A subject may include many rounds of manifestation of the fundamental categories, Energy, Matter and Personality.

Energy isolate may occur in a subject more than once. For example, in the subject, "Diagnosis of the disease of the over-growth of the thyroid glands", both

"Disease" and "Diagnosis" are manifestations of the fundamental category "Energy". The incidence of Disease is prior to its Diagnosis. Therefore, in the analysis of the subject, "Disease" is made to precede "Diagnosis". The energy isolate "Disease" is said to belong to Round 1. And the energy isolate "Diagnosis" is said to belong to Round 2. Illustrations of the occurrence of Personality and Matter in different rounds will be found later.

Postulate 17 Space and Time Isolates can normally occur as manifestations of Space qua Space and Time qua Time, only in the last round of a subject.

Postulate 18 A subject may include many levels of manifestations of the fundamental categories Personality and Matter within any round and manifestations of Space and Time in more than one level in the last round. The levels of Personality within a round occur consecutively. So also with the levels of Matter.

For example, in the subject, "Strengthening the shaky roots of teeth", Tooth and Root are respectively the first and second levels of manifestation of the fundamental category Personality in round 1.

12 Postulates For The Notational Plane

The following are the postulates forming the basis of the work in the notational plane in the Colon Classification:-

Postulate 21 The connecting symbols to be inserted before an isolate number are as shown below:-

Nature of Isolate	Connecting Symbol	Read in words as
Personality Isolate	,	Comma
Matter Isolate	;	Semicolon
Energy Isolate	:	Colon
Space Isolate	.	Dot
Time Isolate	.	Dot
Anteriorising Common Isolate	Nil	

See section 3 for illustrations.

Postulate 22 A personality isolate number, immediately following the basic class number or an energy isolate number, need not be preceded by its connecting symbol.

This postulate saves a digit in places where its absence will not cause any ambiguity.

Postulate 23 The Romans smalls used as anteriorising common isolate numbers have anteriorising quality.

Examples:- 1. Lm precedes L. The result of this is that all general Medical Periodicals get arranged to the left of — that is before — the general text-books and treatises on Medicine.

2. L25:4a precedes L25:4. The result of this is that all Bibliographies of Intestinal Diseases get arranged before the general text-book and treatises on Intestinal Diseases.

3. L82:47:7n precedes L82:47:7. The result of this is that all the year-books on Orthopaedic Surgery get arranged before the general text-books and treatises on Orthopaedic Surgery. The Universal Decimal Classification does not have a similar postulate for the notational plane. At its meeting in Belgrade in 1954, FID/CA, the Committee on the General Theory of Classification of the FID, recommended the postulate, "The

Symbol "(0" —- the combination of starter bracket and zero —— used as the connecting symbol in the case of anteriorising common isolates has anteriorising quality" This recommendation was again confirmed at the meeting in Brussels in 1955 (7).

Postulate 24 The ordinal value of any connecting symbol should be smaller than that of any substantive symbol —— i e a digit occurring in a basic number or an isolate number.

It has been shown in the Abgila of the Indian Library Association (8) that this postulate is essentially to satisfy the principle of Increasing Concreteness (9). This is a finding in the idea plane. Therefore, every scheme of classification should adopt this postulate for the notational plane.

Postulate 25 Arranged in the increasing sequence of their ordinal values, the connecting symbols fall in the sequence 0 . : ; , -

This postulate is essential to conform to the Principle of Increasing Concreteness in the arrangement of the subjects. To secure such an arrangement, the facets in a class number should be assembled in the sequence of the Decreasing Concreteness of the fundamental categories of which they are manifestations. This has been called the Principle of Inversion (10).

Postulate 26 The digits in each of the conventional groups —— Roman smalls, Indo-Arabic numerals, and Roman capitals —— have their respective conventional ordinal values.

Postulate 27 Arranged in the increasing sequence of their ordinal values, the three conventional groups of digits fall in the sequence of Roman smalls, Indo-Arabic numerals, and Roman capitals.

The implication of this postulate is that z is smaller than 1 and that 9 is smaller than A.

Postulate 28 The ordinal value of the starter bracket " (" is greater than that of Z; and the ordinal value of the arrester bracket ") " is smaller than that of 0.

Postulate 291 The ordinal value of each Greek letter brought into use is defined ad hoc, such that its place is adjacent to the Roman capital which is its phonetical equivalent.

A Greek letter is used only to interpolate a partially comprehensive main class just before the first of the main classes comprehended by it. Some feel that the introduction of Greek letters complicates the notation. But it is not so in experience. For they are most needed only in the case of periodicals and occasional general books. In these cases, which are very few, the Greek letters give the neatest possible solution.

It is the intention to denote the basic classes Mining and Animal Husbandry by HZ and KZ respectively instread of by Greek letters as at present.

2 STEPS IN CLASSIFYING A DOCUMENT

The following are the successive steps in classifying a document. Against each step indications are given, wherever appropriate, of the plane to which it belongs, the postulate brought into use, and where a particular scheme comes in.

Note:- Illustrative examples are given in section 3.

Step 0 Write down the name of the subject as it is found in the title of the document.

Step 1 Fill up the ellipsis if any in respect of the basic class or any isolate, which may not be explicitly stated in the title; and break up the derived composite terms, if any, into their fundamental constituent terms corresponding to the five fundamental categories. (Verbal plane).

This step will need a rapid perusal of the contents of the document. Usually, the basic class and the time isolate will have to be supplied at this step. To indicate that these words are supplied by the classifier, they may be inserted within inverted commas, as a help to the eye. These inverted commas may be omitted at the later steps.

In regard to the break-up of composite terms, an oft-recurring case is that of the diseases in the main class Medicine. The name of the disease should be so *stated* explicitly as to lay bare the organ which is the primary focus and the nature of the disease, in addition to the term "disease" itself.

For example, "Asthma" in step 0 should be rendered in step 1 into "Disease of bronchial tube due to allergy", in "medicine"

Step 2 Omit all the auxiliary words; replace all the inflected words by their nominative forms; and thus reduce to telegraphic style, so to speak (Verbal plane).

For it is only the substantive words in the nominative case in the name of the subjects, that will have to be translated into ordinal numbers. In other words, the ordinal language of class numbers is an agglutinative language.

Step 3 Analyse the expression in stage 2 into basic class; and personality, matter, energy, space, time, and anteriorising common isolates; determine their respective rounds and levels; and mark the facets by symbols showing their nature in accordance with the following scheme of symbols:-

(BC)	Basic Class
[P]	Personality facet of round 1, level 1.
[P2]	Personality facet of round 1, level 2.
[P3]	Personality facet of round 1, level 3, etc.
[2P]	Personality facet of round 2, level 1.
[2P2]	Personality facet of round 2, level 2 etc.
[3P]	Personality facet of round 3, level 1, etc.
[E]	Energy facet of round 1
[2E]	Energy facet of round 2
[3E]	Energy facet of round 3 etc.
[S]	Space facet of level 1
[2S]	Space facet of level 2
[T]	Time facet of level 1
[2T]	Time facet of level 2
(ACI)	Anteriorising Common Isolate
(2ACI)	Second Anteriorising Common Isolate.

(Idea plane. Postulates 11, 13, 14, 15, 16, and 18)

The allotment of the different isolates to the different rounds and levels is to be determined by their sequence in the normal way of thinking. However, the allotment of different personality isolates to different rounds is elusive. This calls for research.

Step 4 Rearrange the facets with the basic facet first the anteriorising common isolates along with their own facets in their respective semantically appropriate places; the rounds in their numerical sequence; the levels of each fundamental category in a round consecutively in the numerical sequence of their levels; and the manifestations of each fundamental category in a round in the numerical sequence of their levels (Idea plane. Retain the symbols marking the facets. Postulates 12 and 17).

Step 5 Replace all the terms surviving in step 4 by their standard equivalents as found in the schedules of classification. Retain the symbols marking the facets. (Verbal plane. Depends on the classification scheme used).

All the schemes do not use a carefully chosen standard terminology. They will, if they strive to help the choice and the rendering of the subject heading in the cataloguing work, to be derived mechanically from the class numbers by the Chain Procedure (11). The Colon Classification strives to do so. Its terminology is therefore being continuously made fit for use in subject headings. The chain procedure promotes a holistic relation between the disciplines of classification and cataloguing to their mutual advantage and the advantage of readers.

Step 6 Translate each facet term into its facet number with the aid of the schedules of classification. Retain the symbols marking the facets. (Verbal plane and notational plane. Depends on the classification scheme used).

Step 7 Remove the symbols marking the facets; and insert before the respective facet numbers the appropriate connecting symbols, if any. (Notational plane. Postulates 21 and 22. Depends on the Classification scheme used).

21 Analysis

Step 3 consists of Facet Analysis in the idea plane.

22 Synthesis

Step 7 consists of Synthesis of Facets in the notational plane.

23 Analytico-synthetic Classification

A scheme of classification, in which steps 3 and 7 are consciously and explicitly provided for and are systematically to be taken, is an Analytico-Synthetic Classification. The Colon Classification has been avowedly designed as an analytico-synthetic classification, The Universal Decimal Classification too has many of the features of it, though not to as full an extent as the Colon Classification, The process of analysis and synthesis is implicit in any scheme of classification, though it might be only incipient. But they are not made explicit either by rules or by the way in which the schedules are constructed and presented. Consequently, the process of analysis and synthesis is not consciously gone through while classifying. It is often a question of hit or miss, with the aid of the schedule and the index. In other words, there is not a systematic translation of the name of the subject from the natural language into the classificatory language of ordinal numbers, as it is, when the classifying is done according to the Colon Classification. However, the British National Bibliography has been demonstrating during the last eight years the advantage of analysing and synthesising consciously and explicitly, and the possibility of imposing the method of facet analysis even on an avowedly enumerative scheme such as the Decimal Classification. The consensus of opinion among the British Librarians is said to be veering towards an appreciation and adoption of the analytico-synthetic mode of classifying (12).

3 EXAMPLES OF CLASSIFYING WORK

In the following examples loud thinking is recorded only in some places. The reader will be able to resonate and do the necessary loud thinking in the other cases. All the steps are not indicated in all the examples. This is just to save space. The reader should fill up these missing steps, if necessary.

31 Example 1

0 An elementary treatise on asthma

1 An elementary treatise in medicine dealing with the disease of the bronchial tube caused by allergy.

> Here the name of the basic class has been supplied by way of filling up ellipsis. The derived composite term "Asthma" has been broken down into its fundamental constituent terms showing that it is a disease affecting the bronchial tubes primarily and as one due to "Allergy".

2 Medicine disease bronchial tube allergy.

> This is the result of reduction to the telegraphic style. Practice will make this style intelligible. It will also lead to the development of the necessary conventions for interpreting such a skeleton expression in telegraphic style, containing only nouns in the nominative case. The meaning of the whole is determined solely by the sequence of the words and not by their morphological forms. In other words, the syntax is one of position and not of function denoted by morphological forms.

3 Medicine (BC) Disease [E] Bronchial tube [P] Allergy [2P].

> A scanning of the schedule of basic classes shows that Medicine is the (BC). By the convention about the possible manifestations of the fundamental category energy, we decide that Disease is an [E]. There is no other [E]. Therefore we assign it to round 1. Its facet symbol is therefore determined as [E]. From the positive and negative hints given under postulate 11, we decide that Bronchial Tube is a [P]. In our way of thinking, we take it that this organ is prior to its disease. Therefore we assign it to round 1. We adopt the convention that the cause of the disease is a P and that it should succeed the facet "Disease". Therefore we

assign Allergy to round 2. There is only one [P] in round 1 and one in round 2. The level of each is therefore 1. Thus the facet symbol for the facet Bronchial Tube is [P] and that for the facet Allergy is [2P]. The schedules of the Colon Classification will help beginners in making such decisions as the above, i e, identifying the fundamental categories manifested in a subject, and assigning them to the correct rounds and levels. Practice will soon put them on the right path in making these decisions independently.

4 Medicine (BC) Bronchial tube [P] Disease E Allergy [2P].

This corresponds to transformation of a sentence in grammar.

5 Medicine (BC) Bronchii [P] Disease [E] Allergy [2P].

6 L (BC) 44 [P] 537 [2P]

The facet numbers have been got from Chapter L of the schedules of Colon Classification.

7 L44:4537

The postulates 21 and 22 determine the use and the non-use of connecting symbols. The number in step 7 is the Class Number of the subject given in step 1, according to the Colon Classification.

32 Example 2

0 A brief account of treating asthma by breath control.

1 A brief account "in medicine" of treating the "disease of the bronchial tube caused by allergy" by breath control.

2 Medicine treatment disease bronchial tube allergy breath control.

3 Medicine (BC) Treatment [2E] Disease [E] Bronchial tube [P] Allergy [2P] Breath control [3P].

4 Medicine(BC) Bronchial tube [P] Disease [E] Allergy [2P] Treatment [2E] Breath control [3P]

5 Medicine (BC) Bronchii [P] Disease [E] Allergy [2P] Therapeutics [2E] Respiratory remedy [3P].

6 L(BC) 44 [P] 4 [E] 537 [2P] 6 [2E] 44 [3P]

7 L44:4537:o44

This subject is of greater intention than that of example 1. Indeed, the addition of two more facets to the first subject has been made in the second example. Treatment is made a facet in round 2, because Disease has to occur in the round 1, before Treatment becomes possible. Breath control has been taken as a [P] as it is the means of treatment. It is made [3P] for the same reason. It is a tool, as it were, for treatment.

33 Example 3

0 History of the treatment of asthma by breath control in India.

History implies a space-time mesh. In the above title, space facet alone is mentioned. The time facet should be supplied by reading the document. Let us assume that the history is brought up to the present decade.

1 History "in medicine" of the treatment, of "the disease of the bronchial tube caused by allergy", by breath control, in India "brought up to 1950's".

2 History medicine treatment disease bronchial tube allergy breath control India brought up to 1950's.

5 Medicine (BC) Bronchii [P] Disease [E] Allergy [2P] Therapeutics [2E] Respiratory remedy [3P] History (ACI) India [S] 1950's [T].

We have to depend on our natural semantic sense to place the anteriorising common isolate "history" after the facet "respiratory remedy". Because the history covers the host subject made of all the facets preceding it in step 5. Apart from common sense telling us that space facet and time facet should necessarily follow the facet history, we find it prescribed in rule 21v of the rules and in table 21 of the schedules of the Colon Classification.

6 L(BC) 44 P 4 E 537 2P 6 2E 44 3P
v (ACI) 44 S N5 T

7 L44:4537:644v44.N5

34 Example 4

0 Incidence of asthma in the coastal region of southern England in the wet months of the twentieth century.

5 Medicine (BC) Bronchii [P] Disease [E] Allergy [2P] Preventive step [2E] Epidemiology [3P] South England [S] Coastland [S2] Twentieth centry [T] Wet period [T2]

The schedule headed "Foci in [2E] cum [3P]in chapter L of the schedules of the Colon Classification is of help in the break up of the term "Incidence" in the title into the constituent terms "preventive step" and "epidemiology".

6 L (BC) 44 [P] 4 [E] 537 [2P] 5 [2E]
1 [3P] 5619G [S] 131 [S2] N [T] p5 [T2]

The isolate numbers for South England, Coastland and Wet Period, forming respectively the space facet of level 1, the space facet of level 2, and the time facet of level 2, will occur in the preliminary fascicule of volume 2 of the Colon Classification. These will now be found in V 23 and 24 of the Review of documentation of the FID (13 and 14).

7 L44:4537:51.5619G.131.N.p5

This class number is co-extensive with the subject classified. It is also expressive - that is, it has facets representing every one of the facets of the subject, which is likely to be relevant or of interest to some specialist reader or other. Further, the punctuation marks forming part of the class number have a meaning. They indicate the fundamental category to which the succeeding facet number belongs. Thus the meaning of these facet numbers get determined from the appropriate schedule in the scheme of classification. Apart from this necessary function in the idea plane and the notational plane, the connecting symbols are also of help in the physiological and the psychological planes. They separate out the substantive digits in the class number into groups which fall within a comfortable sweep of the eye. These groups of digits can also be comfortably uttered in a single breath. Psychologically also, these groups are of a size that can be held in memory for a while and comprehended, written out and interpreted. It is conjectured that the optimum number of digits for a group to satisfy these conditi is 3; and that the maximum is 6. Thus, th use of a distinctive species of digits, such a the punctuation marks for connecting symbo is a help in several ways. They are not hin rances or objectionable, as some hastily pr nounce in an ex cathedra way or impulsively under the influence of irrational prejudice.

35 Example 5

0 Electrical repair of the cracked gold brace used for strengthening the root of the upper canine tooth.

5 Medicine (BC) Upper right canine tooth[P] Root [P] Disease [E] Fixation [2P] Surgery [2E] Strengthening [3P] Brace 3P2 Fault 3E Opening [4P] Operation [4E] Welding [5P] Electricity [5P2]

'Strengthening' is taken to be a manifestation of the fundamental category Personality, as it is a means of surgery —— that is, the mechanical setting right —— of the disease in the fixation of the root of the tooth. The brace is the tool used for the surgical operation in question. Therefore it is taken as belonging to the level 2, stre-strengthening being put in level 1. Opening o crack in the brace is the cause of the disease or the fault in the brace. It is therefore taken as a personality manifestation in the round following the energy isolate Fault. Welding is the way of operation for setting right the crack in the brace. It is therefore taken as the manifestation of Personality in level 1 of the next round, that is, round 5. Electricity is the aid to the operation being done that way. It is therefore taken as the manifestation of Personality in level 2 of round 5.

6 L (BC) 21426 [P] 1 [P2] 4 [E] 714 [2P] 7 [2E] 3 [3P] 5 [3P2] 118 [3M] 718 [4E] 1 [5P] (C6) [5P2]

There is a mistake in the sub-divisions shown under "Tooth" in the schedule of Colon Classification in chapter L. The correct sub-division should be along the following lines. The foci in [P] should consist only of whole teeth — that is the kinds of teeth. The parts of teeth should come only as foci in [P2]. The principle forming the basis of this is explained in the Prolegomena (15). In fixing the mnemonic number for the different kinds of teeth and the particular tooth in a kind, we adopt a standard procedure. As there is a symmetry in the arrangement of the teeth, we begin from the centre of the row and move outwards and arrive at the number 2 for the canine. To individualise the particular canine, we start from the right canine in the lower jaw and end with the right canine in the upper jaw. We have to reserve 1 to denote both the canines of the lower jaw taken together and 4 to denote those of the upper jaw. This gives 6 as the number for the canine which is on the right side of the upper jaw. Thus, the whole number for the canine is 21426. To construct the schedule of the parts of teeth, figuring as the foci in [P2], the standard procedure is to begin from the lowermost part as number 1 and finish off with the top; there are other details into which we need not go here.

As the object of "strengthening" is to enable the root of the tooth to function normally, the seminal mnemonic digit 3 for normal functioning is used to represent "strengthening". As the "Brace" is foreign (in the sense of not being intrinsic in the tooth), the mnemonic digit 5 for "foreign" is used to represent "Brace". The number for "Gold" is taken from the chapter "E Chemistry" in the schedule of the Colon Classification. As "Welding" restores the cracked thing into the whole, the digit 1 is used to represent it in [5P]. Lastly, in [5P2], the Subject Device (16) is used to denote "Electricity" as the agency for the welding operation.

7 L21426,1:4714:73,5;118:71,(C6)

It can be seen that this number is co-extensive with the subject being classified. Its facets and the digits in its facets represent every one of the facets of the subject and the characteristics used in each facet, which are likely to be relevant to the purpose of some specialist or other. The class number thus satisfies the Canon of Expressiveness (17).

4 STRUCTURE OF COLON SCHEDULES

Vol. 1 of the edition 5 of the Colon Classification, published in 1957, gives only the schedules for basic classification. They will prove insufficient for classifying most of the books. The preliminary schedules for Main Classes, Common Isolates, Time Divisions, Geographical Divisions, Languages, and the Divisions of the Form of Exposition and the Kinds of the Physical Embodiment of Documents needed in Book Classification, are given respectively in chapters 1 to 6. There is a chapter of schedules for each main class. The schedules for Medicine are given in chapter L. This chapter gives the schedules as described in the succeeding subsections.

41 Organ Schedule

The first schedule is headed "Foci in [P]" It enumerates the organs of the human body. Here are the isolates of the array of order 1:-

1	Basic and Regional
2	Digestive system
3	Circulatory system
4	Respiratory system
5	Glandular system
6	Ductless glands
7	Nervous system
8	Other systems

411 Subdivisions of Regional Organs

The basic and regional organs are scheduled in the array of order 2 as follows:-

11	Cell
12	Tissue
13	Lower extremities
14	Abdomen
15	Thorax
16	Upper extremities
17	Neck
18	Head

Here can be seen the application of the convention of beginning from the bottom and finishing off with the top.

The divisions of head are 181 Face; 183 Ear; 185 Eye; and 187 Scalp. There are also the divisions 191 Joints and 198 Storage regions.

412 Subdivisions of Functional Organs

Each of the functional organs 2 to 7 are subdivided in a suitable way.

413 Subdivisions of Other Systems

These are enumerated beginning from the core and finishing off with the outermost layer. Here are some sample subdivisions:-

82 Bone
83 Muscle
86 Connective tissues
87 Skin
881 Hair
882 Scales

42 Problem Schedule

The second schedule is headed "Foci in [E] cum [2P]". It enumerates the usual problems arising in the study of the human body as a living organism. The isolates of order 1 are the energy isolates. They are enumerated as follows:-

1 Preliminaries
2 Morphology
3 Physiology
4 Disease
5 Public health and hygeine
6 Pharmocognosy
7 Ontogeny
8 Physical fitness

Subdivisions belonging to the [2P] of 1, 3, 5, 6, and 7 are given in this schedule itself. These are sufficiently detailed for classifying books.

4 43 Schedule of Kinds of Disease

The third schedule in chapter L is "Foci in [2P], when the focus in [E] is 4 Disease". It has for its divisions of array of order 1:-

1 General
2 Infection
3 Parasite
4 Poision
5 Functional disorder
6 Nutritional disorder
7 Structural disorder
8 Foreign matter
91 Fire
92 Asphyxia
94 Meteorological

Many of these are subdivided. Then follows an illustrative list of the common specific diseases. They are made of the organ facet and the energy cum second round personality facet given above. This is constructed on the basis that these diseases can be expressed in terms of the organ primarily concerned with the incidence of the disease and the chief cause of it.

44 Schedule for the Handling of Diseases

T The fourth schedule is also applicable to diseases. It is headed "Foci in [2E] cum [3P]. Its scope is shown by the following isolates of the array of order 1, occuring in the schedule:-

1 Nursing
2 Etiology
3 Diagnosis
4 Pathology
5 Preventive step
6 Therapeutics
7 Surgery
8 Diet regulation
91 After care
92 First aid

All but the last three are subdivided to the extent needed for the classification of books.

5 DOCUMENTATION AND DEPTH CLASSIFICATION

The classification of books alone is no longer sufficient for the library service needed to-day. The population pressure has exceeded the capacity of the natural and near-natural commodities to maintain it. It is therefore necessary to supplement them by artificial commodities technologically processed out of non-consumable raw materials. Also raw materials as well as commodities have to be moved from one end of the world to the other almost daily at a rapid rate.

The requires considerable research output as a continuous measure, in the fields of technology, the fundamental sciences, commercial technique, managerial technique, and administration — in fact in every strip in the universe of knowledge to ever-increasing depth.

Research of this nature can no longer depend on the men of genius alone. Nor can we take centuries and decades to bring the results of research to daily use. Nor can we afford to waste the research potential of humanity by the repetition of the same piece of investigation unintentionally and unknowingly.

In other words, research-in-parallel should be replaced by research in-series. Research-in-series requires the prompt communication of the results to all concerned either directly or remotely.

The weekly output of research-results is now beyond the capacity of even a genius to keep track of them. In the case of the persons of the lower intellectual capacity, who have to be included in the research team to-day, it is still more so. Again it is a waste of research man-power to make them spend a considerable time in wading through the mass of papers being published week by week in thousands of periodicals, reports, and patents.

World conservation of research potential compels the library profession to organise nascent thought, appearing as articles embodying micro thought in the periodicals, so that they can be served to the right research worker at the right time, pin-pointedly, exhaustively, and expeditiously. This new duty of the library profession is called Documentation.

51 Documentation Work

Documentation work is really what was originally named bibliography-building. The new name has been introduced to draw attention to the present day emphasis on the listing of nascent micro thought and not merely listing macro thought. In other words, it is not whole books that figure so much in documentation work, as parts and even pages of books and articles in periodical publications. Micro thought is beyond the capacity of the schemes of classification designed in the past having whole books or macro thought in view.

52 Depth Classification

Monolithic enumerative classification should give place to multi-dimensional, faceted, analytico-synthetic classification. For micro thought presents several facets, whereas macro thought presents only one or two facets. The examples 3, 4 and 5 worked out in section 3 represent the type of micro thought to be classified documentation work.

A facet in a micro document in nuclear physics may have a great significance to photography and the chemistry of sensitive films and vice versa. No facet in any micro document can be ignored or left unrepresented in the class number Such is the severe Expressiveness demanded in class numbers, if the classification is to help in the conservation of the research potential of the world.

53 Need for Faceted Classification

Documentation work and depth classification, then, cannot be met with except by a faceted classification. The new ground struck by the Colon Classification thirty years ago has really proved to be an anticipation of the requirements of the documentation work of to-day. The facet analysis, the postulate of five fundamental categories, the postulate of rounds and levels, and the near-mechanisation of the spotting out of the facets in a micro document are all now ready-made disciplines for direct utilization in the coding for the machinery for search. Thus, whether information retrieval is made by the conventional scanning of catalogue entries or by machinery, faceted classification is inescapable.

54 Need for Seminal Notation

It is not practicable to enumerate all the isolates in all the various facets of the millions of micro-thought, getting expressed and embodied to-day week by week. It is my conjecture that the new trend which the new enthusiasm for machine search shows for ignoring notation will soon land us in difficulty. The purely random notation is already being given up, even to reduce the strain on the costly machinery. Apart from this, for most of the libraries which will have to depend on the class number and the catalogue for information retrieval, notation is essential.

Every isolate in every facet should be given a number, whether it occurs in the worked out schedule or not. The only practical way of meeting this situation is to provide the means for the number to be constructed as and when the need arises. Here also, the Colon Classification has struck new ground. Its seminal notation showed the way. This has been demonstrated in the worked examples 3 to 5 in section 3. Some of the elementary directions for the seminal construction of isolate numbers have been incidentally stated in the remarks under Example 5.

55 Work on Group Notation

There are many areas in the universe of knowledge, in which the number of isolates falling within one and same array are far too many to be numbered in the ordinary way. The cultivars in Agriculture, the methods of diagnosis in Medicine, the drugs in Pharmacognacy are examples. They need Group Notation. The neces sary methodology for it in the notational plane and the points arising out of this back in the idea plane have been systematised in the Prolegomena (18).

6 WORK IN PROGRESS

61 Clinical Methods

C.H. Narayana Rao, Librarian of the All India Institute of Metal Health is collaborating with me in preparing a schedule of Clinical Methods. He hopes to take up also the construction of schedules for the various problems arising in psychiatry.

62 Properties, Values and Operations

It has been found that apart from the special isolates needed in the different facets of Medicine and the other basic classes, comprehensive schedules of common isolates denoting properties, values, and operations - manual as well as intellectual - of all kinds should be constructed to meet the intensive demands of the depth classification needed in documentation work. The Library Research Circle of India, with its branches in Delhi and Bangalore, is engaged on the construction of this schedule. An illustration is given using some of the results established provisionally in this investigation. Only the results at some of the essential steps in the classifying work are given here:-

0 How to take measurement of the mobility of the upper right side canine tooth with Muller's gauge.

5 Medicine (BC) upper right canine [P] motion (common property isolate) measurement (common energy isolate) Muller's instrument [2P] operating [2E].

7 L21426;b72:b1,eM:b3

The instruments are individualised by the alphabetical device, using their proper name or international name, if any.

63 Materials, Commodities and Services

It is felt that many situations in depth classification arising out of newly emerging micro thought can be met if a comprehensive schedule of all possible materials, commodities and services is constructed. This schedule will have several millions of isolates. The necessary technique in the notational plane to accommodate them is nearly ready (19).

This schedule will be of as much use in Medicine as in any other subject. The drugs, the instruments for diagnosis and for the administration of drugs, the surgical instruments and applicances, figuring in the facets of medical subjects will all be classified with ease if the schedule of materials, commodities, and services is completed.

7 SYSTEMS AND SPECIALS

71 Mixed Notation

In the example given in section 62, Roman smalls have been used to represent common isolates. The specialisation of the different species of digits for use as the first digits of facet numbers belonging to the different species of facets is a helpful feature in the Colon Classification. This specialisation is possible only because a mixed notation is used. The mixed notation has increased the versatility of the Colon Classification to a remarkable degree. (20).

72 Systems in Medicine

There are several systems of Medicine, such as allopathy, ayurveda, siddha, unani, homoeopathy, naturopathy, and so on. There can be no study of medicine except according to a definite system. And usually readers specialise in one system or another. Therefore, the finding in the idea plane is that all studies in allopathy should be brought together, all studies in ayurveda together, all studies in homoeopathy together and so on. A scheme of classification should implement this finding in the notational plane. Its mixed system of notation enables the Colon Classification to implement it. It individualises each system of medicine by adding after L the capital letter denoting the century when the system came into vogue. It has a schedule of systems as follows:

LA	Disjunctive study of many systems of medicine
LB	Ayurveda system
LC	Sidha system
LD	Unani system
LJ	Allopathic system
LL	Homoeopathic system
LM	Naturopathic system

It further provides that the most widely practised system need not have the loading by the second digit but may be represented simply by L. For example, if allopathy is the most widely practised system, it is represented simply by L.

This is another measure of the versatility of the Colon Classification due to its mixed notation. The examples in section 74 illustrate the versatility.

73 Specials in Medicine

This versatility is also illustrated in the individualisation of the specials in medicine. The first digit in the isolate number of a special is the octavising digit 9; and the second digit is a Roman capital got by a kind of quasi-mnemonics, as follows:-

L9A	Disjunctive account of many specials
L9C	Pediatrics
L9E	Geriatrics
L9F	Female medicine
L9H	Tropical medicine
L9T	Aviation medicine
L9V	War medicine
L9X	Industrial medicine

74 Examples

The arrangement of a small assortment of medical subjects is given below, to illustrate the sequence in which the favoured system and the other systems and specials are thrown.

L	Allopathic medicine (favoured system)
L185	Allopathic ophthalmology
L214	Allopathic dentistry
L9C	Allopathic child medicine
L9C, 185	Allopathic ophthalmology of child
L9C, 214	Allopathic dentistry of child
LB	Ayurvedic medicine
LB, 185	Ayurvedic ophthalmology
LB, 214	Ayurvedic dentistry
LB, 9C	Ayurvedic child medicine
LB, 9C, 185	Ayurvedic opthalmology of child
LB, 9C, 214	Ayurvedic dentistry of child

75 Telescoping of Facets

The above examples make clear that the system, the special, and the organ form the successive facets in reality. This is in accordance with what is in the idea plane. But, let us concentrate on the second digits in all the class numbers but the first. They belong to the array of order 1 after L. These digits represent organs specially and systems respectively. This means that in the notational plane the three different facets stand telescoped. This telescoping of facets results in economy in the length of class numbers. The telescoping is possible because of mixed notation. Systems and specials are not peculiar to Medicine. Many basic classes have them. This is one of the results of the Zone Analysis initiated by the Colon Classification.

76 Symbiosis between Classification and Cataloguing

The postulates of classification result in the arrangement of subjects in a particular sequence. For example, it arranges together all the allopathic study's together, all the ayurvedic study's together, and so on. Again confining ourselves, say, to allopathy, it arranges all the ophalmological studies together, all the dentistry studies together, and so on. Again confining ourselves, say, to dentistry, it arranges all the studies on dental anatomy together, all the studies on dental diseases together, and so on. This is helpful, say, to those specialising, say, in aryurveda, or say, in allopathic dentistry, or, say, in allopathic dental treatment. Such kind of specialisation might prevail among the majority of medical men.

But there may be a few who seek to study the disease of every organ system. They would prefer to have all the documents on disease together and have them arranged among themselves by organs - say eye diseases, dental diseases, throat diseases and so on. Classification cannot serve, by itself, both the classes of people, it cannot serve two masters. But, it is not unmindful of such alternative preferences of readers.

To help them, it seeks the help of the catalogue. Through the chain procedure, it helps the catalogue to bring together all the entries, say, on diseases. The alphabetical part of the catalogue gives class index entries such as

Disease, Animal KZ :4
Disease, Canine teeth, L2142:4
Disease, Child L9C:4
Disease, Eyes L185:4
Disease, Teeth L214:4
Disease, Unani LD:4

Thus, the reader seeking everything about diseases is asked to look up the classified part of the catalogue under a few different class numbers, to get all the information on diseases. Such is the symbiosis between classification and catalogue. But, whereas, the reader seeking everything, say, about dentistry has to look up only one region of the classified part of the catalogue, the one seeking everything, say, about diseases has to look up several regions of the classified part. Why are the two classes of readers given differential treatment? Why is the former reader helped more than the latter? Because, the former class of readers is numerically far greater than the latter; and classification which has to arrange linearly has freedom to arrange only in one way. That is why symbiosis is established between classification and catalogue; and the less numerous class of readers is given the second best of help and not altogether neglected.

8 RELATION BETWEEN SUBJECTS AND ISOLATES

Another helpful contribution of Colon Classification is the concept of Phase Relation between subjects and Intra-facet Relation between the isolates in one and the same facet. The connecting symbol to precede a phase or an intra-facet relation digit is 0. The schedule of relations isolated till now is given below:

Relation	Digit for Relation between	
	Subject	Isolates within a Facet
General	a	j
Bias	b	k
Comparison	c	m
Difference	d	n
Influencing	g	r

81 Examples

L0aS	Relation between medicine and psychology
L0bZ	Legal medicine (Medicine with bias towards the requirements of lawyers)
L:20j3	Relation between anatomy and physiology
L:730r422	Influence of syphilis on embryology
L6:30gS:526	Influence of fear on endocrinal activity
L70dS	Difference between the medicine of the nervous system, and psychology
LB0mC	Comparison of the Ayurvedic and Siddha systems of medicine

9 WORK FOR THE FUTURE

The chief value of the Colon Classification is even more in the methodology it has shown for systematic research in the discipline of classification, even more than in its versatility and self-perpetuating quality. It has emphasised the importance of the work to be done in the idea plane independently of and prior to the fitting up of notation. It has also laid one fruitful path for work in the idea plane by its postulates regarding the fundamental categories, rounds, and levels. It has exploited to a remarkable measure the potentiality of a notational system which uses all the widely prevalent species of digits. These two factors have led to the techniques of facet analysis, zone analysis, and phase analysis. A considerable work awaits to be done in connection with all these contributions of the Colon Classification.

91 Psychology of the Work in the Idea Plane

At present, many of the decisions in the idea plane, in regard to the sequence of arrays, facets, and phases, the very choice of the few of the infinity of the characteristics available as the basis of classification in each facet, and the helpfulness of the over-all arrangement, are left to conjecture. It is desirable to settle these issues on firmer and more objective basis. One method will be the empirical one, of making elaborate observations to find the mode among the tendencies of the reading population. These observations should be carried out in a variety of situations for long periods. The boiling down of the recorded observations will involve considerable statistical analysis. On the whole, this method of deciding the issues will take a long time and a careful organisation and co-ordination. Another method will be to decide these issues by a priori assumptions and deductions therefrom. This will lie largely in the field of psychology and human relation. Perhaps both the approaches should be made. This is work which should be taken on hand as an international project, if we are to conserve the research potential in the discipline of classification.

92 Psychology of Notation

At present, a good deal of amateur opinion is causing confusion in regard to the work on the notational plane. Economic limit to length of class number, complexity of class number, expressive vs compact notation, pronouncibility of class numbers, and the very denial of the need for a notation with semantic significance, are some of the issues which are pronounced upon ex cathedra, without even a preliminary statement of the purposes to be served by classification. It is desirable that these issues are settled by experiments on the reaction of users, the time factor, the cost factor, and other managerial factors. In many meetings, discussion is wasted on pitting one uninformed opinion against another. This is not a problem of importance to one nation only. It has a great bearing on the efficient documentation service to conserve the research potential of the world. Therefore this work also should be carried out as an international project.

93 Seminal Schedules

The turbulent state of the universe of knowledge, which is aggravated by the organisation of research by nation-wide and even world-wide teams of workers, is a cause of the cascade of new subjects of increasing depth to which we are subjected. Their analysis and facetisation can be done in the idea plane. The new isolate numbers that they call for are too many to be left to the care of a headquarter author. The Fourth Law of Library Science (Save the time of the reader) and the Fifth (A Library is a growing organism) jointly insist on the giving of a considerable measure of autonomy to the disciplined classifier who will be working in research libraries. One way of securing this autonomy is facet analysis. But it can produce the best result only if it is associated with seminal notation. In the seminal notation, a few - very few schedules - will be given in respect of seminal ideas, of which all the isolates are manifestations denoted by different terms in different contexts. The very fringe only of seminal notation has been touched by the work already done on Colon Classification. It will add to much promptness and efficiency in depth classification and documentation if an adequate seminal schedule is established. This will require the services of highly integrated personalities with a powerful, penetrating mind, which can see the identity at the seminal bottom of what appear as many in the phenomenal level. Let not this be dismissed as mere Indian mysticism. This is far more objective and concrete than any of the changing phenomena. Provision should be made for this work to be done.

94 Specific Schedules

There is also the more pedestrian job of establishing specific schedules in very great detail. For example, the comprehensive schedule of materials, commodities, and services mentioned in section 63 is an important one. The assembling of the isolate ideas in the idea plane is itself a formidable task. For, the number of isolates will run to some thousands. The work of throwing them into filiatory groups will be even more difficult. But this is work that should be done. It will require many man-years of work. If this is done, the notation can be easily fitted to the isolates, with the aid of the principles already established for group notation.

95 New Systems of Classification

One swallow does not make summer. One analytico-synthetic classification can not by itself advance thought on classification. Even for its own improvement, there should be an alternative scheme for comparative study. Provision should be made for the design of new schemes of classification. But a warning is necessary here. The term New Scheme does not mean merely changing the numerial into a letter, or using X in the place of D, or just rearranging the basic classes or the isolate in a facet. It is here that the postulational approach initiated by the Colon Classification comes to service. Two schemes should be deemed to be new relative to each other, if and only if they are based on a substantially different system of postulates. The present waste of thought in the so-called designing of new schemes of classification should be stopped by this test. This has been discussed in my opening address to the International Study Conference on Classification for Information Retrieval held at Dorking near London from 13 to 17 May 1957 (21).

96 Abstract Classification

Mathematics is developed ahead of the actual need for application in Physics, Engineering and other fields. For it is a tool subject. So also classification is a tool for documentation service. Therefore the discipline of classification too should be developed even ahead of the actual need in documentation work. Mathematics invents methods of analysis and new algebras, new geometries, and new calculuses as if for their own sake. So also, new abstract schemes of classification based on a variety of system of postulates should be continuously developed as if for their own sake, Then only the sudden developments in the universe of knowledge and the sudden demands on documentation and depth classification to carry out the social needs can be met.

97 Agency for Future Work

The agency for some of the new items of work to be done in the discipline of classification can be found or established within the boundaries of particular nations. Other items of work will require an international agency to be set up for the project. It may be a private Foundation of international coverage or a governmental agency like one that may be set up by the United Nations or one of its specialised agencies such as Unesco, FAO, or ILO. Whether the agency is national or international and private or governmental, the co-ordination of all the work done in the world in the field of discipline of classification is necessary. This agency should be, as far as it is humanly possible, free from any political or colour prejudice. Let us hope that such an open-minded, impartial, international agency will develop soon and promote research in classification in order to eliminate waste in the total research potential of the world in every sector of the universe knowledge.

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EXCHANGE OF PUBLICATIONS IN SOUTH AND SOUTH EAST ASIA*

P SHEEL
Insdoc, New Delhi

Mentions the part played by Unesco in sponsoring agreements between various countries with regard to exchange of publications. Discusses the present position in South and South East Asia. Analyses some of the problems such as lack of national bibliography, conditions of book trade, language barrier, etc. and suggests some solutions. Shows how Insdoc's publications —— Bibliography of Scientific Publications of South and South East Asia and Insdoc List of Current Scientific Literature —— attempt to provide a solution for quick dissemination of scientific information.

1 INTRODUCTION

11 Brussels Convention

Exchange of publications has come to be accepted, for a number of years now, as one of the important means of one country obtaining information about the scientific, industrial and cultural activities of another country. As early as 1886 an international convention was held on this subject at Brussels, and an agreement was reached by a number of countries to exchange regularly with other member countries information about their publications, and to make them available on request. Most of the European countries have been acting on this Convention. Later, a number of bilateral agreements were made between Governments and institutions for exchange of publications. The bilateral agreements have certain operational advantages over the multi-lateral agreements.

12 Unesco

From the very beginning, Unesco has been giving considerable attention to the planning and execution of suitable programmes in member states dealing with education, libraries, documentation archives, etc. They have also compiled a very valuable handbook of international exchange and a new edition has recently been printed. The subject of international exchange has been under study by Committees set up by Unesco.

2 SOUTH AND SOUTH EAST ASIA

In the countries of the South and South East Asian region, there are some bilateral exchange arrangements operating at an institutional level primarily for exchange of periodicals. There are also in operation bilateral arrangements for exchange of publications of learned societies. There is, however, no general or multi-lateral agreement between the Governments for the exchange of the governmental publications or the publications of their scientific organisations and learned societies through a centralised agency. To the best of my knowledge only one country in the eastern hemisphere, namely, Japan has taken the lead and organised an international exchange centre at the National Diet Library.

21 Exchange of Regional Basis

There can be no two opinions about the usefulness of multilateral exchange of publications, both the governmental reports and for the publications of learned societies. This operation would be considerably accelerated by the organisation of international exchange centres in the countries of the region to establish, as a first step, exchanges between the countries of the region, and extending the scale of operations gradually to other countries.

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* Paper submitted to the Tokyo Seminar on International Exchange of Publications in the Indo Pacific Area, 1957, and published with the kind permission of the National Diet Library, Tokyo.

3 SOME PROBLEMS

31 Lack of National Bibliography

There are a number of factors which have prevented an orderly growth of exchange amongst the countries of this region. I should like to refer to some of these. The first is that most of the countries of this region do not publish a National Bibliography. The lack of such an important reference work is a serious handicap. Even in India this handicap has been in existence. Only recently the first issue of the Indian National Bibliography has come out.

32 Book Trade

Secondly neither the publishers nor the booksellers of the region appear to give wide a publicity to their publications. The result is that very often no information is available about the publications of the region. Occasionally when information about availability of some publications of the region becomes known through other channels, one does not know from which source to obtain the particular publication. It is commonly known that a number of institutions have preferred to obtain supplies of Japanese publications through agents in London or New York. I am sure one could obtain such publications much quicker if one were to order them direct.

33 Language as a Barrier

The third difficulty arises from the large number of national languages prevalent in the countries of the region. I shall make a reference to this subject a little later in this paper; but at this stage it may be mentioned that unless adequate arrangements are made for the dissemination of information about national publications (and this information can be understood in another country), it will not be possible to organise the exchange of publications on a satisfactory and useful basis.

4 SCIENTIFIC RESEARCH

My observations on the problem of exchanges has so far been of a general character, but I should now like to refer to some aspects of the exchange of scientific and technical publications in which, I am sure, a number of countries of the region are greatly interested. The countries of South and South East Asian region had to face similar socio-economic and to some extent political problems, particularly during the post-war period. The gradual shift in emphasis in the economy of these countries from a primarily agricultural economy to an agricultural-cum-industrial economy is noticeable and understandable. To achieve the aims and benefits of industrialisation and local utilisation of the raw materials to a finished or at least to a semi-finished industrial product stage within a reasonable time, help is being sought from science and technology. New institutions are being established in the region and the tempo of applied research is on the increase. This orientation has brought about a noticeable change in the character of.the scientific publications demanded. The demand for copies of articles from periodicals is now greater than for books.

41 Demand for Scientific Publications

There is a very urgent demand for scientific publications including those required to replace the damage due to the war. In library holdings there are many gaps; union lists of available periodicals do not seem to have been compiled by all the countries (except some lists which have been compiled by individuals for their day-to-day use);; facilities do not appear to have been organised for obtaining such of the publications as may be available from the duplicate holdings of libraries in the region.

42 Exchange of Duplicates

I hope the countries in the region will take steps to organise exchange of duplicates. In obtaining the missing issues, through exchange of duplicates I venture to suggest that every institution should not attempt to ask for the same number to complete its run of back volumes; but that attempts should be made to complete the run of periodicals required for that country in at least one institution. In most cases, as is well known, the back volumes can just not be procured. Unless there is sufficient demand.for a reasonably large number of copies of back volumes no publishing house would consider reprinting the old journals. The widespread use of the photocopying equipment even of the simplest kind would meet to a very large extent the immediate demands of scientific workers of the region for scientific information; provided the location of the periodicals in the country is known.

5 LINGUISTIC DIFFICULTIES

I have already referred to the linguistic difficulties in bibliographical work. These difficulties acquire an important significance in the field of science and technology wherein the speed of supplying information and comprehensiveness of coverage have to be considered. Here, the effect of delays in procuring information might result in the possibility of duplicating work which may have been completed elsewhere. Comprehensiveness of literature search is essential for the planning of research programmes. Both these aspects of scientific research are vitally affected by lack of international exchange of publications and incomplete information on what has been published elsewhere. Simultaneously, it becomes difficult for the scientists in other countries to find out contributions made by their colleagues elsewhere. To solve these difficulties in reporting of original scientific work of the countries of the region suitable action will have to be discussed and adequate proposals made. Help of the national organisations will have to be sought in the matter of the selection of the new literature, translation of titles and abstracts.

6 INSDOC

I should like to mention in this connection that with the cooperation from the Unesco's Science Cooperation Offices in New Delhi and Djakarta, Insdoc is now listing the scientific contributions published in South and South East Asia in a quarterly bibliographical bulletin entitled "Bibliography of Scientific Publications of South and South East Asia".

61 Dissemination of Information on Current Scientific Literature

Dissemination of information for the use of scientists is another problem which has to be considered. The scientific publications of the western countries are noticed in the appropriate abstracting journals after a lapse of about six months. If a science library in this region is receiving a particular periodical published in the western countries then the scientists working in that institution learn of the contents of that journal after about 9-12 weeks, which is the normal time taken in postal transit, but if they are dependent for information on the abstracting periodicals they would get the information after about 30-40 weeks. This order of dealy is substantial, and as documentalists we should consider ways and means of reducing this period of delay to a reasonable limit, so as to make the information available as fast as our scientists demand. Obtaining the periodicals by air mail is not financially feasible for any organisation. In India, we gave considerable thought to this problem. A very happy solution was proposed by Dr. K.S. Krishnan, Director of the National Physical Laboratory of India. In his opinion a scientist would regularly study about half a dozen periodicals in his special field, and if he could obtain the contents of these immediately after publication, then to a large extent he would be posted with the uptodate developments in his special field. So, on this basis we tried an experiment to furnish to scientists information about the contents of a certain number of selected periodicals published in different countries. Arrangements have been made with a number of institutions to send to Insdoc by air mail, twice a month, a microfilm copy of the table of contents of selected periodicals. The information thus received on microfilm is then classified, titles are translated into English and recompiled for offset printing. This bibliographical journal entitled "Insdoc List of Current Scientific Literature", is mailed to scientists twice a month - on the 1st and 16th. The information about the titles of papers reaches the scientists even before the periodicals are received by the libraries.

We consider this experiment an important one, to supplement the information contained in the abstracting journals. But it has certain limitations. The cross-section of the scientific literature reported is restricted by the considerations of finance and facilities for printing the information in a reasonable time.

TRAINING FOR LIBRARIANSHIP

S. R. RANGANATHAN

Shows the need for diversification of training for workers in the spheres of public, academic and business libraries. Gives a curriculum for a rapid three-months' course for Semi-professionals, a one-year post-graduate B.Lib.Sc. course for Professionals, and a further one-year M.Lib.Sc. course or preferably doctorate course for Leaders.

1 LIBRARY PROFESSION

The modern library profession has been evolving for nearly a century. Even in India, it has been evolving for nearly a quarter of a century. And yet, a clear picture of the library profession and of the training needed for it has not yet taken shape.

11 View of the General Public

The general public does not see anything in the work of librarians, which calls for special training. One of the leaders of our country asked me, "What is there in librarianship to justify your writing nearly fifty books on it? I hear of your having organised a course for the Master's Degree in Library Science and of your having persuaded a university to institute a Doctorate Degree in your subject. It means that you try to glorify mere common sense as a fit subject for such degrees." For the common man, a librarian is any person earning his livilihood by working in a library. For many, the thirty posts in the Madras University Library are indistinguishable. For example, there was an unskilled cleaner in the library. His name was Abdur Razak. Most of his mail had the address "Abdur Razak, Librarian, Madras University Library"!

12 View of the Officialdom

For those occupying long-established official positions, library staff consists of lower division and upper division clerks at the bottom, and of superintendents and inspectors at the top. India's officialdom has not yet abondoned this view of the library profession. This view determines, in the minds of those in power, the function of those working in a library. The library staff is ruthlessly interchanged with its own clerical and administrative staff by the host-body, be it a municipal office, a government department, or the office of the Registrar of a University. A stenographer in the Ministry of Education is transferred as University Librarian. A deputy inspector of elementary schools is transferred as Special Officer for Libraries. The Assistant Registrar of a University is made University Librarian. In this view, there is no need for any special training for librarianship.

13 View of the Library Profession Itself

The library profession no doubt concedes the need for special training. But many of the chief librarians in India are not strong enough to insist on it. In some universities, government departments and research institutes, untrained persons are even now permanently appointed to library posts. Till a few years ago, familiarity with several languages was the only qualification prescribed for librarian's posts. All along, I have had to protest against this. Fortunately this primitive view has now been nearly abondoned. But the profession itself is having primitive or old-fashioned views on the content of the course of training.

2 CURRICULUM

21 Pure Curriculum

When the Madras Library Association started a School of Librarianship thirty years ago, the curriculum prescribed consisted only of professional subjects. When the University of Madras took over this School, such a curriculum was continued.

22 Weeds in the Curriculum

When the Banaras Hindu University instituted a course in Librarianship twenty-five years ago, it showed a tendency to deviate from this purity. But it accepted proper advice and avoided that tendency. On the other hand, the University of Bombay allowed the course to be smothered by weeds of many kinds. Its curriculum was loaded with so-called General Knowledge, History of Literature, and Cultural History including some antiquarian cram-information about the art of writing, book-production, and libraries in ancient and medieval times. When I took my training in the London School thirty-four years ago, History of the Novel, two modern languages, and Palaeography were obligatory. I was told that I could skip them, if I did not care for the University Diploma. I exercised this option. This enabled me to concentrate on the professional part of the curriculum only. This has been of immense use to me in later life.

23 Monolithic Curriculum

The library profession is still largely wedded to a monolithic curriculum for the entire profession. There has been resistance to the diversification of the course of training. For example, we have had the historic blunder of compelling the newly emerging documentation wing of the profession to submit itself to the entire curriculum originally designed for the public library wing. It had led to a split in the profession. This split has reached even the international level. It is now so difficult to heal the harm done.

3 DESIGN OF TRAINING COURSE

The training course should be designed in correlation to the kinds of library service that the nation needs. Broadly speaking, we can now isolate three kinds of service:

1 Service to the generalist reader, which lies largely in the sphere of the public library system;

2 Service to pupils, students, and teachers, which lies in the sphere of the academic library system;

3 Service to the world of commerce, industries, and governmental departments, which lies largely in the sphere of the business library system.

31 Common Area

There is an area common to the training needed for each of these three spheres of service. The curriculum for this common area will have to be:

1 The normative principles of the Laws of Library Science. A proper presentation of these laws will induce in the trainees a healthy library outlook. It will further give a bird's eye view of the high-ways and bye-ways in the total field of study;

2 Library administration, with emphasis on the routine common to all libraries in respect of book-selection, book-acquisition, management of periodicals, circulation of reading materials, and maintenance work including the mending and binding of reading materials; elementary account of library building, fittings, furniture, lighting, and maintenance.

3 Library classification, with emphasis on the appreciation of classified arrangement of reading materials, interpretation of call numbers, thinking in terms of facet analysis and class numbers in literature search, and the what, the why, and the how of library classification in general terms;

4 Library catalogue, with emphasis on facility in using a catalogue, the kinds of entries with their respective functions, the sections of each kind of entry, the physical form of the catalogue, and the evolution of the catalogue; and

5 Reference service as the summum bonum of library service, technique of ready reference service, familiarity with reference materials of a general nature, technique of long-range reference service, familiarity with general bibliographies, psychology of reference service, and familiarity with the stages of preparation, actual service, and consolidation of the experience gained during actual service; forms of public relation and library publicity.

32 Special Area for Public Library Service

The extra area to be covered in the training of those aspiring for leadership in public library service should include

1 History of modern public library system in the mother country and in one or two other typical countries;

2 Library legislation with emphasis on factors for legislation, sources for library finance, and library policy;

3 Library structure of the mother country, with the differentia between urban library service and rural library service.

33 Special Area for Academic Library Service

The extra area to be covered in the training of those intended for service in academic libraries should include

1 Familiarity with the courses of studies offered by the host-institution;

2 Correlation of library service to class-room work, with emphasis on preparatory and follow up study;

3 Child and adolescent psychology from the angle of reading and use of library;

4 Training pupils and students in correct reading method, notes-taking, and other related matters; and

5 Formation, maintenance, and rationing of service of test-book collection.

34 Special Area for Business Library Service

The extra area to be covered in the training for service in business libraries should include:

1 Intensive bibliographical knowledge, with emphasis on specialised reference books, ad hoc bibliographies, and abstracting and indexing periodicals in some prescribed areas of the universe of knowledge;

2 Documentation work with emphasis on nascent micro-thought, including depth-classification, and advanced chain-procedure for the formation of class index entries and feature-headings;

3 Methods of literature-search and the building of selective special bibliography in correlation to the problems engaging the attention of the host-body from time to time;

4 Special features of circulation work in the limited context of the host-body;

5 Documentation service including the procurement of documents not available in the library, the preparation of precis, and the organisation and service of the research memoranda and reports being produced by the host-body, so as to conserve research-potential; and

6 Specialised material, equipment and processes needed in business libraries.

4 GRADES OF LIBRARY MAN-POWER

To get a view of the organisation of training for librarianship, we should examine the grades of librarians needed to man a national library system. We shall for definiteness work out the number needed in each grade for the Indian library system. We may recognise four grades of workers. Of these one grade will consist of accountants, clerical workers, messangers, drivers of librachines, gardeners, and watchman. These do not require any training in librarianship. Those needing such training fall into the three groups — Semi-Professionals, Professionals, and Leaders. Let us next estimate the number of persons required in each grade. This estimate should be based on the number of libraries needed to serve all the citizens. In my Library development plan (1951) I have made an estimate of the number of libraries and library man-power ultimately required for India. These figures were based on the Census of 1941 and the political map of India as it was in 1951. Some correction will therefore be necessary in these figures. So corrected the number of persons to be trained in librarianship may be tabulated as follows:

Grade	Total Strength by 1980	Average number to be trained per year for	
		India	Each State
Semi-Professionals	100,000	2,300	220
Professionals	30,000	1,000	70
Leaders	900	30	2

41 Training for Semi-Professionals

The Semi-Professionals will have to work mostly in the circulation and maintenance sections of all libraries and in the libraries of schools. They need to be trained only in the common area described in section 31. My Library manual (1951) has been written just to suit their training. The course should consist of formal lessons for three months and apprentice course in an approved library for six weeks before and for six weeks after the formal lessons. The formal lessons should be repeated four times a year in each constituent state and the 150 trainees needed each year in each state should be trained in four batches. There should be two full-timed teachers. The minimum qualification for admission should be completion of the Higher Secondary Course.

42 Training for Professionals

The professionals will have to work as reference librarians, classifiers and cataloguers, and on book-selection, acquisition of books and periodicals, and in documentation work and service. They need advanced training in the subjects mentioned in section 31 and elementary training in the subjects mentioned in sections 32 to 34. They should take a post-graduate course in a University for one academic year and an apprentice course in an approved library for three months before and three months after the formal course. During the formal course, half of each day should be spent in practical work and the other half in lectures and tutorial work. Every branch should be developed as necessary implications of the Laws of Library Science. There should be a weekly seminar. Each seminar should be preceded by two weeks of preparation by the students on an agreed topic; and the work in the seminar should take the form of discussing a central proposition pertaining to the chosen topic. The course should lead to the B.Lib.Sc. degree. To train the annual quota of 70 professionals in each state, at least two Universities should have a Department of Library Science in each State. To train 35 professionals in a year, a University should have a minimum of two full-timed lecturers.

43 Training for Leaders

The leaders will have to work as National, State, and District Librarians and as Chief Librarians in University and Business Libraries. They should all take in common the three subjects — Universe of knowledge: Development and Structure, Advanced Classification, and Advanced Cataloguing. In addition, each should do to an advanced standard one of the courses indicated in sections 32 to 34. The course should be thrown open only to those who had secured a high place in the B.Lib.Sc. examination, and had earned that degree after the completion of the apprentice course. The course should lead to M.Lib.Sc. examination.

To train the annual quota of 30 leaders for the country as a whole, it may not be necessary for more than two or three Universities in the country to offer the course. No University should offer it unless it has one full-timed professor and two full-timed readers in library science in addition to the two lectures needed for the B.Lib.Sc. Course, and the professors and the readers are capable of doing, and actually do, research in library science.

5 TEACHERS OF LIBRARIANSHIP

In section 4 and its subdivisions, the need for full-timed teachers of Librarianship has been emphasised. To know a subject is necessary, but not sufficient, to be a successful teacher of the subject. Librarianship is no exception to this rule. I have observed in India and in other countries the effect of teaching librarianship by persons not trained as teachers. This makes me assert that teachers of librarianship should undergo training in teaching methods. An economical course will be for a prospective teacher of librarianship to join a Teachers' College. There they should take the course on teaching technique common to all teachers. When the other teachers take specialised courses in the teaching of particular subjects, the prospective teachers of librarianship should take a specialised course in the teaching of librarianship.

51 Number to be Trained

The number of teachers of librarianship needed in India will be ultimately about 100. Immediately, there may be need for about 30 teachers. These can be trained in one year. At present a few universities are appointing full-timed teachers. This is a commendable step. But, they merely pull out working librarians and thus create a vacuum in libraries. Moreover, these are all young diploma holders with little experience in working a library and in teaching. This transition stage of doubtful value can be avoided if a little rethinking and rational approach is made to the problem instead of simply drifting along. Perhaps, the Government of India may arrange for the opening of temporary section for librarianship in one Training College for one or two years, to meet the immediate demand.

6 SEPARATION OF TRAINING FOR SERVICE-STAFF AND TECHNICAL STAFF

We are on the eve of a new development in the training for librarianship. The earlier we recognise it and provide for it, the better it will be. We should separate the courses for the service-staff and for the technical staff. The number of libraries is increasing in every country. Further, the number of books published in each year has nearly doubled in each country within a span of one generation. It is a national waste for each library to classify and catalogue the self-same book. Centralised classification and cataloguing is possible. In Great Britain, the British National Bibliography is able to supply printed catalogue cards for any book published in recent years or currently published. The cards reach a library within two days of placing an order. It has been shown in my Heading and canons (1955) that a saving of 79% would result if we adopt centralised classification and cataloguing both for foreign books and for the books of the home-country. The result of taking advantage of this will be that the service-staff need to know only as much of classification and cataloguing as is prescribed in section 31 paras 3, 4 and 5. Intensive drill in practical classification and cataloguing will be necessary only for the technical staff working in the Technical Wing of the National Central Library, the State Central Libraries, and in the Insdoc Office. This technical staff will bear only a small proportion to the service-staff. Thus it is a waste to give an intensive course in classification and cataloguing to all the persons electing library profession. Of course, the students should elect their field of practice. But this is being done in every other profession. The library profession too will have to fall in a line with the other professions in this respect.

INSTITUTE OF SCIENTIFIC INFORMATION USSR*

P. BASU

Insdoc, New Delhi

Gives an account of the Institute of Scientific Information of the Academy of Sciences of Moscow. Describes (1) the routeing of the periodicals from the Accession Section through the Distribution, Language, Bibliography, and Translation Section to the Technical Section; and (2) the working, the staff-structure, and the functions of the Departments of Express Information, Translation, Technical Information to certain ministries. Makes suggestions for the improvement of the organisation in the Insdoc for the work of translation and abstracting. Stresses the need for translators being given facilities for acquiring knowledge of subjects for translation and subject-specialists meeting periodically for discussion and for the Translation Department maintaining an Index of Technical Terminology.

0 STAGGERING SCALE OF WORK

The Institute of Scientific Information of the Academy of Sciences in Moscow is one of the largest and most important information centres in the world, unique in certain respects. The very first feature of this Institute that strikes one is the staggering scale on which work is being done and also the high degree of centralization. In view of the interest of organizations in English-speaking countries in the work of this Institute, it would perhaps be useful if I describe its activities with more details than I have given for other institutions in the course of this report.

1 PUBLICATION OF ABSTRACTING PERIODICAL

The main function of the Institute is the publication of the abstracting periodical "Referativniy Zhurnal" which is now being published in 13 series:-

1 Mathematics
2 Mechanics
3 Astronomy
4 Geodesy
5 Physics
6 Chemistry
7 Biochemistry
8 Biology
9 Geology
10 Geography
11 Mechanical Engineering
12 Electrical Engineering
13 Metallurgy

Some of these are monthlies and others fortnightlies. The total number of copies published per year is 490,000. This means that the average number of copies of each fascicule absorbed by the country is about 37,000. About 12,000 foreign periodicals from 85 countries in 45 languages are scanned and analysed. The number of articles and patents abstracted comes to about 500,000.

2 ROUTE-ING OF PERIODICALS

21 Accession Section

The periodicals first arrive at the Accessions Department where they are registered.

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* Forms part of a study tour report submitted on the termination of a Fellowship granted under the Unesco Technical Assistance Programme. Acknowledgement is made to the Unesco for their kind permission to reproduce it here.

The department subscribes to 11,000 periodicals and receives the others in exchange. A geographical and an alphabetical card index are maintained for all of them.

22 Distribution Section

The periodicals are next sent to the Department of Systematization which has to cover about 12,000 foreign and 2,000 Soviet periodicals. The department has the following language divisions:

1 English
2 Romance languages
3 Teutonic languages
4 Languages of the U.S.S.R. (22 languages) and other Slavonic languages
5 Far-Eastern languages (Chinese, Japanese etc.)

The department includes also a Bibliographical and a Transliteration Section.

23 Language Section

The periodicals are first sent to the respective language divisions. Here staff members, linguists and not scientific experts by training, go through the articles and decide to which editorial office of the periodicals they should be sent. The articles are stamped accordingly. The same article may be sent to more than one editorial office if it is of interest to more than one branch of science. The title is translated into Russian, except in the case of English, French and German, and the article is passed on to the Bibliography and Transliteration Section before being sent to the editor-in-charge of the particular section to which it belongs.

24 Bibliography Section

In the Bibliography Section, index cards are made for the titles; specially trained typists doing this work. The number given to an article indicates the year, the month, and the date on which it was recorded, and also the serial number for that date.

25 Transliteration Section

The periodicals are then passed on to the Transliteration Section where the authors' names are transliterated according to a particular system, keeping in view the pronounciation. Cards with the original spelling and the transliteration are kept to ensure that the same person's name is always transliterated in the same way. Names in all the languages dealt with are transliterated.

26 Technical Section

The periodicals now move on to the technical section where each periodical is marked according to the number of copies of it available in the Institute.

27 General Remarks

The bibliography sheets containing the titles, the names of the authors and the serial numbers are then reproduced by the offset process. 6 cards are made for each title if it is sent to one section only.

No subject index exists at present. There is an author index and an accession index. One author index is in the Cyrillic (Russian) alphabet, the other in the Roman.

Only about 10% of the abstracting is done in the Institute, the remainder being sent out to be done by specialists who are paid pro rata. Part-time editors are also employed in addition to the full-time staff at the Institute.

3 EXPERIENCE WITH RUSSIAN ABSTRACTS

At my request, the Institute arranged for me to work in two of the editorial departments, those of Physics and Mechanics.

In the Physics Department, where I remained for two months, I was engaged in writing Russian abstracts of articles in English, German and French. These were subsequently edited by the Chief of the Section.

In the Mechanics Department, where I worked for more than a month, I translated into Russian a number of abstracts of English articles that had already appeared elsewhere.

The time this spent in these two departments gave me valuable practice and provided further insight into Russian technical terminology.

4 ORGANISATION OF THE DEPARTMENT OF EXPRESS INFORMATION

The department to which I next moved on was that of "Express Information" This department aims at providing an express service to technologists by bringing up-to-date information of developments in different fields to their notice. In a way this supplements the work of the abstracting periodicals of the Institute but there are important differences. The stress here is definitely on technology as opposed to academic research. The abstracts are very comprehensive, give all the necessary information and are complete with illustrations.

41 Time-Factor

The bulletin is divided into 30 sections dealing with various branches of technology and is issued almost weekly (48 issues a year). Each issue contains about 4-5 abstracts. The time-delay between the arrival of the original article and the publication of the abstract is 10 to 15 days, the former being considered ideal.

42 Turn-Over

Nearly 2,000 periodicals in English, French, German and other European languages are covered.

43 Staff

About 300 spare-time abstractors are employed. There is an editor-in-chief (also part-time) for each section who marks out the articles to be abstracted. 23 full-time controlling editors look after the technical details of the abstract after it has passed through the hands of the editor-in-chief and 9 literary editors take care of the style, grammar etc.

5 ORGANISATION OF TRANSLATION DEPARTMENT

51 Location

The Translation Department of the Institute, which had been shifted from the main building to a suburb about 20 miles from the city, was next visited.

52 Division of Work

The work undertaken by this department falls under two categories. Work done

1 for the use of the Institute, and
2 for outside organizations.

53 Part-Time Translators

About 2,000 part-time translators living in Moscow and the suburbs are employed. Out of these about 500 are almost constantly occupied. For European languages like English, French, German etc., usually specialists with a knowledge of the language are taken. For rare languages on the other hand, anybody with a knowledge of the language has to be accepted. In the case of exact sciences scientists are preferred, while for subjects like Biology linguists with a knowledge of the subject might be taken.

54 Full-Time Editors

There are 24 full-time controlling editors on the staff, 10 doing work for the Institute and 14 work for outside organizations. These persons are generally linguists with a knowledge of more than one language.

55 Part-Time Editors

Part-time scientific editors, usually research workers of the Academy of Sciences, are employed to edit translations required by outside organizations from the point of view of the subject. The payment to the part-time translator as well as to the scientific editor is decided by the controlling editor. The rates of payment to the part-time translator vary according to the quality of the translation. The scientific editor is paid according to the amount of work he has to put in.

56 Provision for Discussion

Discussions are at times organized with the participation of the translator, the scientific editor and the controlling editor. Non-specialist translators are supplied with papers on a particular subject to enable them to get used to the terminology.

57 Turn-Over

Most of the work done for the Institute is for comparatively little-known European languages like Italian, Spanish, Scandinavian and also rare languages. No scientific editor is employed in such cases.

Translations are complete in every respect with tables, diagrams, illustrations etc. 5 typed copies are generally made. The time taken in the ideal case is about 6 weeks.

A quarterly booklet of translations made in the department is issued. A terminological card index is being maintained.

58 Price of Translations

The charges made for translations vary slightly according to the language of the original. Additional copies are supplied at a standard price which amounts from one-seventh to one-sixth of the price of the original translation of an article of average length.

6 ORGANISATION OF TECHNICAL INFORMATION DEPARTMENT

61 Service to Ministries

The next department I visited was the Technical Information Department publishing short reports and reviews on:

1 Metallurgy	4 Chemistry
2 Power	5 Coal Mining
3 Machinery	6 Food Industry

This department caters to the needs of various ministries and is only about six months old.

62 Staff

Each section has an Editor-in-Chief who chooses the material and sends it to a part-time abstractor. 35 staff editors edit the abstracts and prepare reviews and short reports from them.

63 Functions

Work on short reports is conducted faster here and sent to the respective ministries within a couple of days. Diagrams are also supplied.

Specific requests for reports on particular topics are made by the ministries. Proposals made by the staff of the Institute are also submitted to the ministries.

Reviews running to 150 pages or so take about 8-12 weeks. Typed copies are sent to specialists and also to the ministry concerned for comments. If approved, these reviews are later published in printed form.

7 RESEARCH DEPARTMENT FOR MECHANISATION

The Institute has a department which is carrying out research on the problem of mechanizing the compilation of references, indexes etc. These machines are as yet in an experimental stage.

8 ORGANISATION FOR TRANSLATION WORK

81 Position in Europe

In conclusion, I believe it would not be out of place to offer a few general comments.

Omniscience, ideal though it might be, is absurd to expect. It is the onerous task of the translating editor in Insdoc to approach this ideal as closely as possible. The problem of scientific translation is more acute in India than it is in Europe, because of the greater difficulty of finding scientific and technical experts with a knowledge of languages and an ability to translate. In Western Europe, translation is just one of the services sometimes provided by important documentation and information units or bureaux, which more often than not act as mere clearing houses - very heavy editing not being required frequently. Requests for full-length translations are not often made and rarely entertained, as the research worker is in a position to meet the translator or abstractor, who gives him the gist of the article and can dissuade him from asking for a full-length translation if it is not really essential. The fact that the important research institutions and technical laboratories have their own abstracting units with members of staff who have a knowledge of languages besides a knowledge of the particular subject makes this possible.

82 Position in India

In Insdoc we are faced with the enormous task of catering to the needs of scientists and technicians interested in all subjects. The fact that direct contact between the technician and the linguist is generally impossible forces us to undertake every request for a translation of an article, no matter how unimportant it may be.

83 Non-Specialist Translator

The only centralized translation service comparable with ours I have seen is in the Soviet Union. But the important difference, apart from the vast resources at the disposal of the Institute of Scientific Information, consists in the fact that in a city like Moscow, which is at the same time an academic and an industrial centre, the translator and the research worker or the technician can be brought together for a discussion if necessary. It has been mentioned in the section on the Soviet Union that panel translators are exclusively recruited from the city and its environs. This is hardly possible in Delhi and even if it were, the translator and the technician or research worker could rarely meet. Whereas in the Soviet Union the full-time staff editor has to take care of the language only, here in Insdoc we have to pay attention to the accuracy of the subject matter also due to the non-availability of specialists who can or are willing to translate. The majority of our panel translators are not specialists, and have done either a course in Arts or sometimes in one of the Pure Sciences (but not Applied Sciences or Technology). The situation is fast going to become a difficult one because the number of requests for technical as opposed to purely scientific articles is daily increasing at a considerable rate. We cannot indefinitely leave it to the customer to do his ow subject editing, as at present in many cases, simply because he is not always in a position t do so.

84 Need for Subject-Knowledge

The only solution I can think of is that our staff translators should be given every facility to acquaint themselves at first hand, even though superficially, with as many branches of technology as possible.

85 Need for Index of Technical Terminology

A terminological card index should also prove very useful. Such an index is maintaine by many important centres abroad.

9 ORGANISATION FOR ABSTRACTING

91 Position in Europe

Successful abstracting is best done by specialists in their respective fields. The only centralized abstracting services I found were at the CNRS and in the Soviet Union. But ther too the work is done by specialists in their respective subjects, and edited by knowledgeable research workers, with long experience in their fields.

92 Position in India

An abstracting service is not an imperative necessity in our country at the moment due to the availability of excellent abstracting periodicals in English, the working language of the Indian Scientist. As far as other foreign languages are concerned, the translated titles appearing in the Insdoc List of Current Scientific Literature serve an important purpose by bringing to the notice of scientists and technicians information that they would normally receive much later.

LIBRARY CLASSIFICATION GLOSSARY

S. R. RANGANATHAN

Shows the need for glossaries of classificatory terms for different schools of thought, as recommended by the FID. Explains the procedure adopted in the compilation of this glossary covering the Indian School of Thought. Defines and enumerates the terms in a systematic sequence. Arranges the terms under the following groups: 1) classification of finite universes, 2) universe of library classification, 3) knowledge classification, 4) universe of documents, 5) chain procedure, 6) machine-search, 7) normative principles, 8) canons of classification, 9) abstract classification.

0 INTRODUCTION

01 Genesis

At its meeting on Friday 16 September 1955 in Brussels, The General Assembly of the FID adopted my resolution that "FID should take the necessary steps to prepare a glossary of classification terminology". This simple resolution was based on six resolutions adopted by the Committee on Classification on the motion of Cordonnier.

02 Scope

These resolutions indicated the need for and the scope of the glossary as well as the method to be followed in building the glossary. According to them

1 To make the papers of the persons working in different countries on the theory of classification comprehensible and to avoid annoying misunderstandings, a glossary should be prepared giving all the terms introduced by the author, together with their definitions in ordinary words.

2 Such person's glossary should also include those "ordinary words" which the author is conscious of using in a sense different, that is, narrower or broader from that of their precise definitions.

3 With some author, different definitions would be necessary for successive publications.

4 In the present state of work on classification, it would be dangerous to try to translate these "personel glossaries" and the terms should be quoted only in their original language.

5 The Secretariat of the FID should translate the definitions.

6 One should avoid using in a sense different from their original definitions, the "personal" terms introduced by other authors.

03 Procedure

In 1957, the Secretary-General of the FID asked me for suggestions for implementing the simple resolution cited at the beginning. I recommended that the first step should be for each school of thought on the theory of classification to prepare its glossary, that these glossaries should be collated, and that the result of collation would suggest the further action to be taken by the FID. The Secretary-General indicated general agreement to this procedure.

04 Cause for Delay

The delay in producing the glossary pertaining to the Indian school of classification was due to my desire that it should be compiled by somebody other than myself. As this wish of mine had not been fulfilled for three years, I myself had to take up the work.

05 Plan of Work

In view of Cordonnier's third point, an attempt was first made to peruse each of the contributions — books or articles — made at different stages during the quarter of a century between 1933 and 1958. The perusal disclosed that each major contribution contained a precise definition of the terms-of-art used therein. Secondly, a steady evolutionary movement towards a stable vocabulary was also sensed. It was felt that it might be pedantic to give all the stages in the evolution of the terms and date them with their sources. An attempt was however made to give reference to the first source and the latest source. Even this was felt to be unnecessary. For, it was found that in most cases, the evolution did not imply a change in meaning as much as an improved statement of the meaning. This progressive improvement has reached a further stage in the course of the preparation of this glossary itself.

06 An Illustration

A typical example relates to the definition of the devices such as chronological device and geographical device. In the definition given down to the 1957 editions of the Prolegomena to library classification and the Colon classification, a failure to separate out what pertains to the idea plane, the verbal plane, and the notational plane respectively, was discovered.

061 Helpful Definition

A helpful definition of the work in these plane had been made as early as 1951. It was stated that the choice of the preferred helpful arrangement was the concern of the work in the idea plane. It was the business of the notational plane to implement this choice. The terms selected in the verbal plane should be made of fundamental constituent terms, expressing the essential characteristics used to secure the helpful arrangement chosen. Further, the basic work in these planes should follow the pattern of each respectively. As far as possible the terminology of classification should be separated out for these three planes, though they will naturally run parallel as shown in section 383.

062 Effect of Mix-up

And yet, the confusing mix-up of the happenings and the terms in the idea and the notational planes had persisted for seven years in respect of the devices. This confusion has even misled others to misunderstand that these devices are peculiar to Colon Classification.

063 Intrinsic to the Universe of Knowledge

But in fact these devices are intrinsic to the universe of knowledge and are to be taken advantage of by any classification scheme in its work in the idea plane. It is only in the way in which these devices are implemented or not, in the notational and verbal planes, that classification schemes can differ. The separations and the difference in the meanings of these devices in the idea plane and in the notational plane, laid bare in the definitions 372 to 378 (for the idea plane) and the definitions 3792 to 3798 (for the notational plane), would go a long way in removing the above mentioned misunderstanding about the devices.

064 Elimination of Noise

This new experience gained in the preparation of this glossary during the last two weeks makes me feel that many dark regions in the development of library classification will get illuminated if the separation of the work in the idea plane, the notational plane, and the verbal plane is carried out vigilently, persistently and ruthlessly at every step and in every nook and corner of the field of study. Then only each term will become precise with a unique meaning. And then only communication as well as auto-communication in respect of the developments in the theory of classification will be freed from confusing noises. It is hoped that this glossary makes some contribution towards that end.

07 Lay Out

The main part of the glossary gives the meaning of terms in the chapters 1 to 9. This systematic presentation of the glossary is in conformity with Indian tradition. This tradition dates from the Vedic Period. The tradition has been widely brought to notice by the classic in Sanskrit lexicography entitled Amarakosa (dictionary beginning with the word Amara which means immortal beings). In Anglo-Saxon culture also Thesaurus is a well known example of the presentation of a glossary in a systematic manner.

070 The glossary begins with an alphabetical index to the terms defined in chapters 1 to 9, in a systematic sequence.

071 Chapter 1 defines the terms arising in the theory of the classification of finite universe.

072 Chapter 2 is devoted to the fixing of the terms relating to the structure and development of the universe of knowledge and to the universe of documentation, which together form the universe for library classification.

073 Chapter 3 is the pith of the glossary. It gives the glossary for the terms arising in the theory of knowledge classification. Some of the terms already defined in chapter 1 are redefined here with a slant to the theory of classification of an infinite universe, which by its very nature is concerned with the classification of the universe of multiple classes instead of the universe of discrete entitites other than classes. In other words, the entitites of the universe of knowledge are themselves classes; and hence the need for re-definition of some of the terms.

074 Chapter 4 is a simple and short one, dealing with the glossary of terms developed in the theory of book classification, that is in the attempt at a helpful method of individualising the books falling in the same class of knowledge.

075 Chapter 5 gives a glossary of the terms connected with the chain procedure developed in India and now used extensively in the British National Bibliography and getting accepted by an increasing number of persons as helpful in the preparation of class indexes, ie subject headings.

076 Chapter 6 gives only a short glossary of terms pertaining to machinery for mechanical search. As no work is being done in India in this field, the terms listed are only those that occur in an elementary theoretical approach.

077 Chapter 7 gives the enunciation of the postulates for the idea plane and the notational plane in the postulational approach to knowledge classification, being developed since 1956. A crude presentation of them occurred in the Prolegomena in 1957. Classification was taught along the lines of postulational approach in the British schools in 1956, at the Vikram University in the academic year 1957-58, and in the Library Research Circle of Bangalore during the latter half of 1958. This teaching experience had led to a more helpful system of postulates given in chapter 7.

078 Chapter 8 gives a definition of the canons of classification and of the principles for securing helpful sequence.

079 Chapters 91 and 92 give definitions of terms abstract pertaining to classification and symbolic meta-language.

08 Source Materials and Abbreviations Used

CC = Colon classification, ed 5, 1957.

Prol = Prolegomena to library classification, ed 2, 1957.

Fundamentals = Library classification : Fundamentals and procedure, 1944.

Elements = Elements of library classification, 1945.

Classification and international documentation (Review of documentation 14, 1947, 154-77).

CCMS = Classification, coding and machinery for search. Unesco, Paris, 1950.

Philosophy = Philosophy of library classification, 1951.

Classification and communication, 1951.

Theory of library catalogue, 1938.

Heading and canons, 1955.

CCC = Classified catalogue code, ed 4, 1958.

Depth classification, 1953.

The series of articles entitled Optional facets in Abgila 1-3; 1950-53.

The series of articles continued as Depth classification in the Annals of library science 1-5; 1954-58.

The series on Common isolates in the Review of documentation 23-25; 1956-57.

Machine literature searching (by J. W. Perry, A. Kent, and M. M. Berry), 1956.

Documentation terms in Review of documentation.

In the case of books, it is the latest edition that is cited.

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GLOSSARY

1 CLASSIFICATION OF FINITE UNIVERSE

Note:- Most of the terms in this chapter were used for the first time in the first edition of the Prol (1937). But the reference is given only to the sections in the second editon (1957).

11 Universe and Entity

111 EXISTENT. - Undefined assumed term.

112 ENTITY. - Any existent, concrete or conceptual — ie a thing or an idea. (Prol, S 120).

1121 AGGREGATE. - A collection of entities without any special arrangement of them. (Prol, S 120).

113 UNIVERSE. - An aggregate under consideration in a context. (Prol, S 120).

1131 FINITE UNIVERSE. - Universe with a finite number of entities.

1132 INFINITE UNIVERSE. - Universe with an infinite number of entities.

Example:-

Universe of knowledge is an infinite universe. By its very nature all the entities of an infinite universe cannot be known at a time. New entities will continuously come to be known as and when they emerge.

114 ATTRIBUTE. - Any property or quality of an entity. (Prol, S 120).

Example:-

The following are some of the attributes of a book:- Subject-matter; form in which the subject-matter is expounded, such as catechism, drama, prose narrative, pictures, etc.; language; author; year of publication; binding. The following are some of the attributes of a system of philosophy:- Number of ultimate principles assumed (as in monism, dualism, and pluralism); attitude towards reality (as in idealism and realism); founder; country of origin.

115 LIKE ENTITIES.- Entities sharing a given attribute equally in measure, intensity, extent, or on any other basis, the likeness being with reference to the said attribute. (Prol, S 1211).

116 UNLIKE ENTITIES.- Entities sharing a given attribute unequally in measure, intensity, extent, or on any other basis, the unlikeness being with reference to the said attribute. (Prol, S 1211).

Example:-

Basu's Algebra and Radhakrishna Ayyar's Algebra are like with reference to subject-matter, but unlike with reference to author.

117 CHARACTERISTIC. - Attribute or complex of attributes with reference to which the likeness or unlikeness of entities can be determined and at least two of the entities of the universe are unlike. (Prol, S 1212).

Example:-

Height is a characteristic of the entities in a universe of men; but possession of a face is not.

12 Division and Groups

121 DIVISION. - 1 Process of sorting the entities of a universe into sub-aggregates on the basis of a preferred characteristic, putting like entities into the same sub-aggregate and the unlike entities into different sub-aggregates.

2 The result of division in the first sense — ie a set of sub-aggregates formed by the division of the entities of a universe.
(Prol, S 1213).

122 DIVISION CHARACTERISTIC. - Characteristic preferred as the basis for the division of the entities of a universe.
(Prol, S 1213).

123 GROUP. - Any sub-aggregate of entities formed by the division of the entities of a universe.
(Prol, S 1214).

124 UNITARY GROUP. - Group consisting of one and only one entity.
(Prol, S 1214).

125 MULTIPLE GROUP. - Group consisting of two or more entities.
(Prol, S 1214).

126 COMPLETE DIVISION. - 1 The process of continuing the division of the entities of a universe on the basis of a sequence of characteristics, until no multiple group is left.
(Prol, S 1215).

2 The result of complete division in the first sense.
(Prol, S 12151).

13 Assortment and Class

131 ASSORTMENT. - 1 Process of the division of the entities of a universe into groups plus that of arranging the groups in a definite sequence.

2 Result of the assortment of a universe in the first sense.
(Prol, S 122).

132 ASSORTMENT CHARACTERISTIC. - Characteristic preferred as the basis for the assortment of a universe.
(Prol, S 12201).

1321 RANKING. - Arranging the groups formed by the division of the entities of a universe, so as to arrive at an assortment of the entities of the universe.

133 CLASS. - Ranked group.
(Prol, S 1221).

134 UNITARY CLASS. - Class containing one and only one entity.
(Prol, S 1221).

135 MULTIPLE CLASS. - Class containing two or more entities.
(Prol, S 1221).

136 COMPLETE ASSORTMENT. - 1 Process of continuing the assortment of the entities of a universe on the basis of a sequence of characteristics, until no multiple class is left.
(Prol, S 1223).

2 Result of complete assortment in the first sense.
(Prol, S 1223).

1361 INDIVIDUALISATION. - Separation of an entity in a universe into a unitary class by the process of assortment.
(Prol, S 12231).

137 SCHEME OF ASSORTMENT. - Statement of

1 the characteristics used as the basis of a complete assortment of the entities of a universe;

2 the sequence in which the characteristics should be used; and

3 the principles used for ranking the classes at each step in the progress towards the complete assortment.

(Prol, S 1224).

14 Array, and Order of Class and Array

141 ARRAY. - The sequence of the classes of a universe, derived from it on the basis of a single characteristic at any step in the progress towards a complete assortment of the entities of a universe. (Prol, S 1222).

142 ORDER OF A CLASS. - The number of successive characteristics on the basis of which it is derived from the universe. (Prol, S 123).

143 ORDER OF ARRAY. - The number of successive characteristics on the basis of which the classes in the array are derived from the universe. (Prol, S 123).

144 CO-ORDINATE CLASSES. - Classes belonging to one and the same array. (Prol, S 123).

145 IMMEDIATE UNIVERSE. - The class of order next higher to that of a class or an array, when viewed relative to that class or array. (Prol, S 123).

1451 IMMEDIATE UNIVERSE OF FIRST REMOVE. - Immediate universe

1452 IMMEDIATE UNIVERSE OF SECOND REMOVE. - Immediate universe of the immediate universe of first remove.

146 COLLATERAL CLASSES. - Classes of the same order but not belonging to one and the same array. (Prol, S 123).

147 COLLATERAL ARRAYS. - Arrays of the same order. (Prol, S 123).

148 CLASS OF ORDER 0. - The original universe. (Prol, S 123).

15 Chain of Classes and Order of Chain

151 CHAIN. - The sequence of the classes of a universe consisting of a class and of its immediate universes of successive removes, carried backwards to any point desired. (Prol, S 124).

152 LINK. - A class in a chain. (Prol, S 124

1521 FIRST LINK. - The class of the lowest order contained in a chain. (Prol, S 124).

1522 LAST LINK. - The class of the highest order contained in a chain. (Prol, S 124).

153 ORDER OF A CHAIN. - The order of the first link of the chain. (Prol, S 124).

154 PRIMARY CHAIN. - The chain of order 0 - ie a chain with the original universe as the first link. (Prol, S 124).

155 LOOSE CHAIN. - Chain with a unitary class as its last link. (Prol, S 124).

156 COMPLETE CHAIN. - Loose primary chain - ie chain with the original universe as its first link and a unitary class as its last link. (Prol, S 124).

16 Filiatory Sequence

161 PSEUDO ENTITY. - Any class arising in the course of the complete assortment of a universe, considered as an empty receptacle for the array of the entities ie for the unitary classes and the multiple classes derived from it as the immediate universe. (Prol, S 1251).

162 AMPLIFIED CLASS. - Class enriched by the addition of its pseudo entity. (Prol, S 1252).

163 COMPLETELY AMPLIFIED UNIVERSE. Original universe amplified by the pseudo entity corresponding to itself and by the pseudo-entities corresponding to all the multiple classes that arise in the course of its complete assortment. (Prol, S 1255).

164 COMPLETELY AMPLIFIED CLASS. - Any class amplified by the pseudo-entities corresponding to all the multiple classes that arise in the course of its complete assortment. (Prol, S 125).

165 FILIATORY SEQUENCE. - Filiatory sequence is the sequence in which the entities

and the pseudo-entities of a universe fall after its complete amplified assortment. (Prol, S 1256).

166 SCHEME OF CLASSES. - Statement showing the filiatory sequence of the classes — ie pseudo entities — alone that arise in the course of the complete amplified assortment of a universe, ignoring the entities themselves. (Prol, S166).

17 Classification Scheme

171 CLASSIFICATION SCHEME. - Scheme of classes fitted with terminology and notation. (Prol, S 1283).

172 TERMINOLOGY. - The system of terms, in a natural language or in the jargon of a profession or a trade, denoting or naming the classes in a classification scheme. (Prol, S 12831).

173 NOTATION. - The system of ordinal numbers representing the classes in a classification scheme. (Prol, S 12832).

174 CLASS NUMBER. - Ordinal number representing a class in a classification scheme. (Prol, S 12832).

175 CLASSIFICATORY LANGUAGE. - Artificial language of ordinal numbers, made of the class numbers of a classification scheme. (Prol, S 12832).

176 ORDINAL NAME. - Class number of a class in a classification scheme. (Prol, S 12832).

177 SCHEME OF CLASSIFICATION. - Dictionary giving the meaning of each class number or ordinal name in a natural language or a jargon of a profession or a trade. (Prol, S 1284).

Note: Obviously this dictionary or schedule will be arranged in the sequence of class numbers.

178 INDEX TO CLASSIFICATION. - Dictionary giving the class number representing a term in a natural language or the jargon of a profession or a trade; in other words, giving the meaning of such a term in terms of the ordinal names of a classificatory language. (Prol, S 1285).

Note: Obviously this dictionary or index will be arranged in alphabetical sequence.

1791 CLASSIFYING. - Assigning an entity of a universe to the appropriate class in the scheme of classification adopted, by ascertaining the way in which each of the characteristics implied by the scheme is shared by it, and assigning the appropriate class number to it. (Prol, S 1287).

1792 CLASSIFICATIONIST. - Person who designs a classification scheme. (Prol, S 1286 . Rev doc 14, 1948, 156, S 102).

1793 CLASSIFIER. - Person who classifies the entities of a universe according to the classification scheme. (Prol, S 1286 . Rev doc 14, 1948, 156, S 102).

2 UNIVERSE FOR LIBRARY CLASSIFICATION

21 Universe of Knowledge

211 UNIVERSE OF KNOWLEDGE. - Assumed term. Its entities are subjects and isolates.

212 SUBJECT. - Assumed term.

213 KNOWLEDGE ITEM. - Subject. Its exposition may extend in print to several volumes at one extreme or to only a single sentence or even a single word at the other extreme. For example, the Knowledge Items, contained in and denoted by the following, stand arranged in the decreasing sequence of their extension:

1 Encyclopaedia of general knowledge;

2 Encyclopaedia of library science;

3 The knowledge content of this document (Library classification glossary).

4 The knowledge content of chapter 2 of this document; and

5 The knowledge content of this very section — section 213.

214 THOUGHT. - Knowledge-item - ie subject.

215 MACRO THOUGHT. - Subject of great extension, usually embodied in the form of a book greater in size than a pamphlet. (Prol, S 61393. Depth, 1953, S 1.1.32).

216 MICRO THOUGHT. - Subject of small extension, usually embodied in the form of an article in a periodical, a section or a paragraph in a book, or a pamphlet. (Prol, S 61393. Depth, 1953, S 1.1.32).

Macro thought and micro thought are relative terms without a sharp line of demarcation.

2161 CONTRIBUTION. - Micro thought embodied in the form of an article in a periodical, section or a paragraph in a book or a pamphlet. (CCC, S 1336).

217 ISOLATE. - Entity in the universe of knowledge which is not a subject by itself but whose combination with a subject (host subject) gives rise to a subject of smaller extension than the host subject. (Prol, S 345 (5)).

Example:-

"Gold" is an isolate and not a subject. But "Chemistry of Gold" is a subject of smaller extension than the host subject, "Chemistry". So are "Mineralogy of Gold", "Smithy of Gold", "Sculpture in Gold" and "Economics of Gold".

22 Universe of Works

Note:- Most of the terms in this section were used for the first time in Ranganathan's Heading and canons: Comparative study of five catalogue codes (1955). But the reference is given here only to CCC, ed 4, 1958.

220 EXPRESSED THOUGHT. - Thought expressed in language, pictures, or symbols, or in any other medium and thereby made communicable. (CCC, S 113).

The above definition itself is Expressed Thought. It is expressed in the English language. A picture is also Expressed Thought. A mathematical or a chemical formula is again Expressed Thought. A gesture is equally an Expressed Thought.

2201 WORK. - Expressed Thought. (CCC, S 114).

221 SACRED WORK. - Basic work of a religion, generally accepted as such among its followers. (CCC, S 116)

Vedas, Upanishads, Tantras, Tripitakas, Talmud, Bible, New Testamant, Koran. A Sacred Work is often treated as if it were a class or subject.

222 CLASSIC. - Work usually appearing in several versions, and/or having several adaptations and translations, inspiring other works on itself, and repeatedly coming in print even long after its origin. (CCC, S 117).

Examples:-

Aristotle's Poetics, Newton's Principia and Marx's Capital are Classics. A Classic too is often treated as if it were a class or a subject.

223 LITERARY WORK. - Work in the form of a poem, drama, fiction, prose, champu or any other literary form. (CCC, S 113).

Strictly speaking; the outstanding qualities of a Literary Work should be beauty of form, emotional or intuitional appeal, and endless layers of suggestions in regard to meaning, and/or which is of intuitive or trans-intellectual origin.

Examples:-

Ramayana, Iliad, Sakuntala, Canterbury Tales, Hamlet, Hound of Heaven, Post Office and Apple Cart. This involves judgment particularly in the case of poem, drama, fiction and champu; and judgment cannot be unanimous. Therefore it is a convention to treat a work in any of these four forms, as Literary Work. A Literary Work is treated as if it were a class or a subject.

224 PEDESTRIAN WORK. - Work which is not a Sacred Work, a Classic or a Literary Work, and is not made into a quasi-class or a quasi-subject by the scheme of classification in use.

2251 INTEGRAL TREATMENT. - Treatment of a subject in a work in such a way that the treatments of its subdivisions are not separable from one another or from the whole work.

2252 DISJUNCTIVE TREATMENT. - Treatment of a subject in a work, in such a way that the treatments of its subdivisions are separable and admit of each being made or work by itself independently of the other subdivisions and of the whole work.

2253 MULTI-FOCAL WORK. - Work treating several collateral subjects, not having a common immediate universe of the first remove, in accordance with the preferred scheme of classes.

226 TITLE. - Name of a work. (CCC, S 115).

227 AUTHOR. - 1 Person creating a work — ie the thought and the expression constituting it.

2 Corporate body owning responsibility for a work — ie for the thought and the expression constituting it. (CCC, S 123).

2292 ABRIDGEMENT. - Reduced form of a work, by condensing and/or omitting more or less of details, but retaining the general sense and the unity of the original work. (CCC, S 1141).

Example:-

Chap 1 of Library manual gives an Abridgement of my work entitled Five laws of library science.

2293 ADAPTATION. - A version of a work, re-written for a particular purpose, but not so changed as to be deemed an independent work on the basis of the quality of its thought and expression. (CCC, S 1142).

Example:-

The chapter on classification in my Library manual is an adaptation of the work contained in my colon classification in small libraries. Lamb's Tales from Shakespeare is an independent work, and not an adaptation of Shakespeare's dramas, on account of its own individualistic quality of thought and expression. Ramodantam is an independent work and not an adaptation of Valmiki's Ramayana.

2294 PARODY. - Work in which another work is ridiculed by imitation.

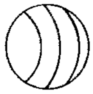
2295 TRANSLATION. - Work forming the expression of another work in a language different from that of the original.

2296 CATECHISM . - Work in the form of questions and answers.

23 Development of the Universe of Knowledge

231 DISSECTION. - Break-down of a subject or an isolate into several subjects or isolates of smaller extension on the basis of a characteristic and thereby creating an array of new subjects or isolates. (Rev doc 14, 1948, 157, S 14).

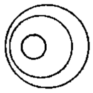
In dissection, the boundary lines of the new subjects or isolates formed thereby are exclusive of one another as schematically shown below.



Dissection

232 DENUDATION. - Progressive dimunition of the extension and the increase of the intention or the depth of a subject or an isolate and thereby producing a chain of new subjects or isolates. (Rev doc 14, 1948, 157, S 15).

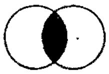
In denudation, the boundary lines of the successive new subjects or isolates lie within one another as schematically shown below:



Denudation

233 LAMINATION. - Reducing the extension and increasing the intension or the depth of a subject by attaching to one of its isolate two or more isolates appropriate to it. (Rev doc 14, 1948, 158, S 16).

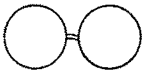
The following is a schematic representation:



Lamination

234 ASSEMBLAGE. - Formation of a new subject by bringing one subject into relation with another not capable of forming or sharpening the first subject by subject device. (Rev doc 14, 1948, 159, S 18).

The following is a schematic representation:



Loose-Assemblage

24 Universe of Documents

241 EMBODIED THOUGHT. - Record of work on paper or other material, fit for physical handling, transport across space, and preservation through time. (CCC, S 131).

2411 DOCUMENT. - Embodied thought. (CCC, S 1311).

This term is introduced for brevity. It was brought into use a few decades ago to emphasise embodied micro thought. It is now extended in use to include any embodied thought, micro or macro.

2412 THOUGHT-CONTENT. - Expressed thought embodied within a document or a volume of it. (CCC, S 1313).

2415 MACRO DOCUMENT. - Document embodying macro thought. (CCC, S 13111).

2416 MICRO DOCUMENT. - Document embodying micro thought. (CCC, S 13112).

2417 HOST DOCUMENT. - Macro document when viewed from the angle of a document forming part of it. (CCC, S 1311).

Example:-

A periodical is a macro document. Each article in it is a micro document. The periodical is the host document for each of the articles contained in it. So also, a book is the Host Document for each of its chapters and sections, which may b looked upon as micro documents.

242 VOLUME. - Physical entity formed of several leaves of paper or other material o which is recorded, either the whole or a pa of a work, fastened together so as to be opened at any desired place. (CCC, S 1312)

243 KINDS OF DOCUMENTS.

2431 PERIODICAL PUBLICATION. - 1 Document with attributes as stated below:

1 A volume, or a small group of volumes c it is published or intended to be publishe and completed normally once in a year (o at other regular intervals), though irregularity in interval is not ruled out:

2 Each successive volume, or periodical group of volumes, is usually distinguishe by the year of publication and/or by a number belonging to a system of simple or complex ordinal numbers. Such a number is usually called a Volume Number;

3 The intention had been to continue the publication of the volume for ever, thoug not actually carried out; and

Any single volume of a Periodical Publicati in the first sense. (CCC, S1332).

2432 PERIODICAL. - 1 Periodical publicatio of which each volume is made up of distinct and independent contributions, not forming continuous exposition, normally by two or more personal authors and normally the spe cific subjects and the authors of the contributions in successive volumes also being, i general, different, but all the subjects falling within one and the same region of knowlege, contemplated to be brought within its purview.

2 Any single volume of a periodical in the first sense. (CCC, S 13321).

Examples:-

1 Annals of library science
2 Proceedings of the Royal Society of London
3 Zeitschrift der deutschen morgenlan ischen Gesellschaft.

2433 SERIAL. - 1 Periodical publication of which each volume, or each periodical group of volumes, embodies more or less similar information, mainly relating to its year (or other period) of coverage.

2 Any single volume of serial in the first sense. (CCC, S 13322).

Examples:-
1 Annual Report of the Director of Agriculture, Madras,
2 Madras Telephone Directory,
3 Statesman's year-book,
4 Who's who in America,
5 Year-book of the Carnegie Institution of Washington.

2434 INDEXING PERIODICAL. - A periodical giving a bare catalogue of articles bearing on a stated subject and appearing in the current fascicules of periodicals. It may also include bare entries of books currently published. (CCC, S 13324).

Examples:-
1 Agricultural index
2 Technical index
3 Law index

2435 ABSTRACTING PERIODICAL. - A periodical giving a catalogue of articles bearing on a stated subject and appearing in the current fascicules of periodicals, each entry being provided with an abstract of the article described by it. It may also include annotated entries of books currently published. (CCC, S 13323).

Examples:-
1 Biological abstracts
2 Library science abstracts
3 Science abstracts: Electrical engineering

2436 BOOK. - A physically independent document other than periodical publication — that is, it has been completed or has been intended to be completed in a finite number of volumes. It is generally in one volume. (CCC, S 1333)

The above definition really connotes what is commonly understood by the term "Book"

2437 MULTI-VOLUMED BOOK. - Set of volumes deemed to be inseparable to form a single book, on the ground that

1 the set possesses a common index; or
2 the same sequence of pagination is continued in all the volumes of the set; or
3 the thought-content is so distributed among the volumes of the set that it is unhelpful to treat each volume as it were a separate book. (CCC, S035)

3 KNOWLEDGE CLASSIFICATION

Idea Plane

30 FUNDAMENTAL CATEGORIES. - Time, Space, Energy, and Personality. (Prol, S 3501. Fund, 1944, S 514).

These are only postulated categories, without any metaphysical significance. Their connotation is indicated in the succeeding sections.

31 Fundamental Category : Time

310 TIME. - Assumed term. (Fund, 1954, S 141).

311 TIME ISOLATE: Level 1. - Conventional division of time, such as Millennium, Century, Decade, Year, Month, Week, Day, etc., Geological age - measured from a conventional era. (Prol, S 463. Abgila 1, 1950, 49, S3).

312 TIME ISOLATE: Level 2. - Pocket of time repeating itself in the stream of time, as a result of astronomical factors like the rotation of the earth on its axis, the periodical motion of the moon, the earth, and the other planets along their respective ecliptics, astrophysical factors like the variations in sun spots and other solar phenomena, or cosmic factors such as the periodical contraction and expansion of the universe as a whole, with all of which are correlated meteorological occurences and seasons, thermal, radiational, electrical, ionic, magnetic, cosmic ray and other phenomena. (Prol, S 463. Annals 1, 1954, 68, S 313).

3121 FEATURED TIME. - Time isolate of level 2. (Prol, S 463. Annals 1, 1954, 68, S313)

313 PUBLIC TIME. - Time conventionally

reckoned from the assumed year of birth of Jesus Christ or any other year as origin. (Prol, S 4533. Abgila 1, 1950, 57, S 33).

3131 PUBLIC ERA. - Origin for reckoning public time. (Rev doc 23, 1956, 71, S 21). A schedule of some public eras is given in the above reference.

3132 FAVOURED ERA. - Era most helpful in classifying the majority of the documents in a collection, library, or a bibliography. (Rev doc 23, 1956, 72, S 23).

The Christian era is now the favoured era in wide use.

314 PRIVATE TIME. - Time reckoned from an epoch intrinsic to a subject, as origin. (Rev doc 23, 1956, 77, S 6. Abgila 1, 1950, 57, S 33).

Examples:-

1 In the study of the development of the foetus and ontogeny of any organism, the epoch of fertilisation is a more helpful origin for the measurement of time than the year of Jesus Christ.

2 In the biography of a person or the history of an institution, the year of his birth or the year of its foundation is a more helpful origin for the measurement of time.

3 So also, in the study of the fundamental particles in nuclear physics, and in certain macro phenomena in physics, chemistry, technology, biology, agriculture, medicine, education, and economics.

3141 PRIVATE ERA. - Origin for reckoning private time. (Rev doc 23, 1956, 77, S 61).

315 UNIT OF TIME. - Duration of time used in measuring time for forming time isolate. (Rev doc 23, 1956; 72, S 2).

Examples:-

Millennium, century, decade, year, month etc, geological age. Thus units of different durations may be used for different epochs, according to the context and the array.

3153 PUBLIC UNIT OF TIME. - Unit of time based on astronomical factors, such as millennium, century, decade, year, commonly in use.

31531 EFFECTIVE CENTURY. - Odd century or a century whose century digit is 1, 3, 5, 7, or 9, in an A D millennium; and even century or a century whose century digit is 0, 2, 4, 6, or 8 in a B C millennium.

31532 EFFECTIVE DECADE. - Odd decade or a decade whose decade digit is 1, 3, 5, 7 or 9 in an A D century; and even decade or a decade whose decade digit is 0, 2, 4, 6 or 8 in a B C century. (CC, S 311).

3153 METHOD OF COMPLEMENTS. - Method for determining the digit for a century, decade or year in the time isolate number in a B C millennium, such that the ordinal sequence of the years follows the progression of time from the past into the future. It is as follows. Write the conventional number of the year in Indo-Arabic numerals. The excess of 9 over each corresponding digit is the century number, decade number, and year digit respectively in the isolate number. (CC, S 330).

Example:-

Taking C to represent the first millennium B C, 3 B C = C996; 10 B C = C989; and 50 B C = C499.

3154 PRIVATE UNIT OF TIME. - Unit of time intrinsic and suited to a subject. (Rev doc 23, 1952, 79, S 8).

Example:-

In the ontogeny of a living organism, such as the stage of pre-natal, new born infant, child, adolescent, adult, and the old, different units of time may have to be used. So also, in the study of the fundamental particles in nuclear physics, minute fractions of a second may have to be used, depending on the nature of the particle.

32 Fundamental Category: Space

320 SPACE. - Assumed term. (Fund, 1954, S 5143).

321 SPACE ISOLATE: Level 1. - The conventional division of the surface of the earth, such as continent, country, constituent state, district, county, taluk, and other political or general administrative division. (Prol S 3521).

3211 MOTHER COUNTRY. - Country to which the library belongs. (CC, S 42).

3212 FAVOURED COUNTRY. - Country about which the library has a larger collection than about other countries barring mother country. (CC, S 43).

3213 ZONE. - Division of the surface of the earth or of a geographical area, based on latitude as characteristic. (Rev doc 24, 1957, 24, S 44. Abgila 1, 1950, 80, S 442).

3214 ORIENTATION DIVISION. - Division of the surface of the earth of a geographical area based on orientation as characteristic. (Rev doc 24, 1957, 23, S 43. Abgila 1, 1950, 80, S 443).

3215 EMPIRE. - Territory of an empire.

3216 SUBJECT REGION. - Geographical area(s), whether contiguous or not, but taken together and having a special subject feature.

Examples:-

Geological circles of a country, the rice belt of the world or of a country, communistic countries, postal district, dollar area, and underdeveloped countries. (CC, S 413. Abgila 1, 1950, 98, S 452).

3217 NEAR-SOVEREIGN FORMATION. - Area comprising countries, whose governments have agreed to form a group with willingness to surrender or with the intention of surrendering eventually some part of their sovereignty, as part of the sovereignty of the authority of the formation. (CC, S 412. Abgila 1, 1950, 83, S 448).

Example:-

United Nations, The Commonwealth, League of Nations.

3218 NON-CONVENTIONAL ZONE. - Division of the surface of the earth or of a geographical area, based on any diameter other than the polar axis and any other diameter orthogonal or oblique to it. (Abgila 1, 1950, 81, S 444).

Example:-

Zones used for aviation maps.

322 SPACE ISOLATE: Level 2. - Smaller physical feature—smaller than a continent or an ocean. (Prol, S 3522. Rev doc 24, 1957, 57, S 52).

Examples:-

Desert, prairie, coastland, cape, delta, island, valley, plateau, mountain, city, gulf, lake, river.

3221 FEATURED SPACE. - Space isolate of level 2. (Rev doc 24, 1957, 57, S 52).

323 SPACE ISOLATE: Level 3. - Subdivision of a physical feature based on some characteristic intrinsic to it. (Rev doc 24, 1957, 27, S 6).

Examples:-

Tree-less zone, snow zone, etc. of a mountain; garden, ridge, street, notified area, shopping zone, etc. of a locality; territorial wards and high sea of an ocean.

33 Fundamental Category: Energy

330 ENERGY ISOLATE. - Category such as

1 Action by human agent on another human being or material or concept;

2 reciprocal action between physical, biological or human entities;

3 reciprocal action between natural groups in biology and social groups in social sciences;

4 auto-action within an entity;

5 method of action involved in reciprocal action and auto action; and

6 any one of the other categories deemed as manifestation of energy in a scheme of classification.

Example:- (for 6)

In CC, structure, normal functioning, reciprocal action with environment, evolution from one form to another, and development of one and the same form — these enumerated categories are without a generic name. (Prol, S 3531. Fund 1954, S 5143).

331 ENERGY ISOLATE: Round 1. - First manifestation of the fundamental category energy in a subject, when it is analysed into its facets and the facets are arranged according to prescribed postulates and principles. (Prol, S 35611. Abgila 2, 1952, 185, S 5751).

The sequence of the manifestations of energy arising in the analysis of a subject into its facets and arranging them are generally determined by the Principle-of-Later-in-Time and the Principle of Later-in-Evolution, or any other suitable principle which arises intrinsically in the context of the subject.

332 ENERGY ISOLATE: Round 2. - Second manifestation of the fundamental category energy in a subject, when it is analysed into its facets and the facets are arranged in accordance with prescribed postulates and principles. (Prol, S 3561. Abgila 2, 1952, 185, S 5751).

34 Fundamental Category: Matter

3400 Preliminaries

34001 CONCRETE ENTITY. - Entity existing physically in space-time mesh, outside the mind of the knower, as it is commonly understood and recognisable with the aid of primary senses.
Examples:-
House, Door, Table.

34002 ABSTRACT ENTITY. - Entity existing only as a concept within the mind of the knower, without a concrete entity as a correlate and not recognisable with the aid of the primary senses.
Example:-
Goodness, constitution, law.

34003 NATURAL MATERIAL. - Concrete entity found in and extracted from nature.
Example:-
Clay, paddy, milk.

34004 NEAR NATURAL MATERIAL. - Natural material processed within small limits and without the aid of technology and machinery in order to bring it to the stage of being consumable, or nearer to that stage.
Example:-
Brick, rice, boiled rice, rice pudding, butter.

34005 ULTIMATE COMMODITY. - Natural or near-natural material either directly consumable or processed beyond small limits and usually with the aid of technology and machinery and brought to the state of being consumable as it is.
Example:-
Fruit, rice-pudding, motor car.

34006 INTERMEDIATE COMMODITY. - Natural material processed to a definite stage in its progress towards becoming an ultimate commodity.
Example:-
Rice, boiled rice, steel plate.

34007 RAW MATERIAL. - Natural or near-natural material or an intermediate commodity, when viewed as the pre-form of the ultimate commodity if it is the next stage or of the intermediate commodity of the next stage in its progress towards the stage of ultimate commodity.
Example:-
Paddy is raw material for rice. Boiled rice is raw material for rice-pudding — milk also is raw material for butter and rice-pudding.

34008 IMMEDIATE COMMODITY. - Raw material in the immediately next stage of processing in its progress towards the stage of ultimate commodity.
Example:-
Rice is immediate commodity processed from paddy.

340081 MATERIAL. - Natural material, near-natural material, intermediate commodity, or ultimate commodity.

34009 SERVICE. - Action to satisfy a want.
Example:-
Transport service, laundry service, teaching.

340091 ULTIMATE SERVICE. - Service at the stage of its being directly satisfying a want.

340092 INTERMEDIATE SERVICE. - Service at any stage in its progress towards consumable service.

340 MATTER ISOLATE. - Category such as

1 Natural material
2 Near-natural material
3 Intermediate commodity when used as raw material
4 Intermediate service
5 Ultimate service
6 Property. - Attribute of an entity
7 Value

341 MATTER ISOLATE: Round 1. - Manifestation of the fundamental category matter before the manifestation of the fundamental category energy in the Round 1, in a subject when it is analysed into facets and the facets are arranged in accordance with prescribed postulates and principles. (Prol, S 3532, Abgila 2, 1952, 186, S 5752).

342 MATTER ISOLATE: Round 2. - Manifestation of the fundamental category matter after the manifestation of the fundamental category energy in its first round and before its manifestation in the second round. (Prol, S 3532. Abgila 2, 1952, 186, S 5752).

343 MATTER ISOLATE: Level 1. - First manifestation of the fundamental category matter in any particular round, in a subject when it is analysed into facets and the facets are arranged in accordance with prescribed postulates and principles. (Prol, S 466. Abgila 2, 1957, 186, S 5756).

344 MATTER ISOLATE: Level 2. - Second manifestation of the fundamental category matter in any particular round, in a subject when it is analysed into facets and the facets are arranged in accordance with prescribed postulates and principles. (Prol, S 466. Abgila 2, 1952, 186, S 5756).

35 Fundamental Category: Personality

35001 PORTION OF A CONCRETE ENTITY. - Part of a concrete entity, different from its whole only in quantity or size. (Prol, S 3503).

Example:-
1 A glass of milk taken out of a jug of milk.
2 A short piece of wire cut out of a long piece.
3 A lump of clay taken out of a big ball of clay.

35002 ORGAN OF A CONCRETE ENTITY. - Part of a concrete entity which is not a portion of it, which has its own individuality, with its own distinctive features and functions, which is specific to the whole entity, and which contributes to the make up of the whole. (Prol, S 3503).

Examples:-
1 Hand of a human body
2 Wheel of a bicycle
3 Top layer of a road surface.

35003 CONSTITUENT OF CONCRETE ENTITY. - Material of which the entity or any of its organs are made. (Prol, S 3503).

Examples:-
1 Iron in a bicycle
2 Cement in the wall of a building
3 Water in the human body.

The constituent of a concrete body is a manifestation of the fundamental category Matter.

35004 ORGAN OF A SOCIAL ENTITY. - Part of social entity which has its own individuality, with its own distinctive features and functions, and which contributes to the make up of the whole.

Examples:-
1 Cabinet of a Government
2 Academic Council of a University
3 Top management of a business enterprise.

35005 UNIVERSE OF WHOLES. - Universe of whole entities of a specified kind, concrete or social. (Prol, S3503).

Examples:-
1 Universe of the bicylces whatever be the brand or size
2 Universe of governments whatever be the kind of governments
3 Universe of literature whatever be the language.

35006 ORGANS OF FIRST REMOVE. - Universe of the organs of a typical whole entity of the universe of wholes concerned, arrived at the first level of breakdown of the whole into its organs. (Prol, S 3503).

Examples:

1 Wheel, gear, frame, handle, and seat are organs of first remove of a bicycle
2 Head, cabinet, legislature, are organs of first remove of a government
3 Foundation, floor, walls, pillars, are organs of first remove of a building.

35007 UNIVERSE OF ORGANS OF SECOND REMOVE. - Universe of the organs of the first remove of a typical whole organ of the first remove of a typical whole entity of the universe of the wholes concerned. (Prol, S 3503).

Examples: -

1 The tyre, the tube, the rim, the spokes and the hub of a wheel of a bicycle
2 Prime minister, education minister, finance minister, etc. of a cabinet of a government
3 The pedestal, the stanchion part and the capital of a pillar of a building

3501 PERSONALITY ISOLATE. - The residue arising in the analysis of a subject into the fundamental categories, after Time, Space, Energy, Matter, and Anteriorising Isolates are separated out. (Prol, S 3550).

The residue may be a universe of whole concrete or social entities or the universe of their organs of any remove or a universe of abstract entities forming isolates in subjects belonging to certain main classes such as mathematics, literature, linguistics, religion, education, and law. The Personality Isolates in these subjects are usually indicated as such by a classification scheme. This will have to be so until an objective, general, more positive definition than the one given in the enumerative definition indicated above, could be formulated.

351 PERSONALITY ISOLATE: Level 1. - A universe of whole isolates of personality. (Prol, S 3551).

Examples:-

1 Hind cycle, Humber cycle, Raleigh cycle, Men's cycle, Ladies cycle, Children's cycle.
2 Monarchy, Oligarchy, Democracy among types of Government
3 English, Sanskrit, Tamil as media for literature.

352 PERSONALITY ISOLATE: Level 2. - A universe of organs of first remove of whole concrete or social entity, and a universe of isolates enumerated in a classification scheme as isolates of level 2 in mathematics and other subjects mentioned in 351. (Prol, S 3552).

Examples:-

1 Wheels of different brands of a bicycle
2 Head, Cabinet, Parliament, etc. of a Government
3 Forms of literature such as Poetry, Drama, Fiction, Prose, etc.

353 PERSONALITY ISOLATE: Round 1. - Personality isolate manifesting itself in a subject before the first manifestation of the fundamental category Energy, when the sub- is analysed into facets and the facets are arranged in accordance with prescribed postulates and principles. (Prol, S 3534).

354 PERSONALITY ISOLATE: Round 2. - Personality isolate manifesting itself in a subject after the first manifestation of the fundamental category Energy but before its second manifestation. (Prol, S 3534).

355 SYSTEM. - Exposition of a subject in accordance with a specific school of thought. (Prol, S 3671).

Examples:-

1 Ayurveda, Siddha, Unani, Allopathy, and Homoeopathic systems in medicine
2 Classical, Psychoanalytical, Behaviouristic, Gestalt and Field systems in psychology
3 Kindergarten, Dalton plan, Basic systems in education.

356 SUB-SYSTEM. - Exposition of a subject according to a system which is accepted to be a sub-system of another system.

Examples:-

1 Adler's individualism and Jung's system among the sub-systems of Freud's psychoanalysis.

357 FAVOURED SYSTEM. - The system which has the greatest literary warrant in a library. (Prol, S 36711).

358 SPECIAL. - Restriction of the field of exposition of a subject to a particular range of the incidence of any of its characteristics likely to belong to the unrestricted state of the subject. (Prol, S 3672).

Examples:-

1 Child medicine, Female medicine, Industrial medicine in medicine.
2 Low pressure physics, High temperature physics, and Nuclear physics in physics.
3 Hydroponics in agriculture.

3590 PERSONALITY FACET: Level 0. - Special.

3591 PERSONALITY FACET: Level (-1). - Sub-system.

3592 PERSONALITY FACET: Level (-2). - System.

36 Postulates and Procedure

361 Postulates for Idea Plane

3611 POSTULATE 11. - Time, Space, Energy, Matter, and Personality are the five fundamental categories, one or more of which only may manifest themselves in a subject, in combination with a basic subject.

3612 POSTULATE 12. - Arranged in the decreasing sequence of their concreteness, the five fundamental categories fall in the sequence Personality, Matter, Energy, Space, and Time.

3613 POSTULATE 13. - Basic classes are those enumerated as such in a scheme of classification.

3614 POSTULATE 14. - Anteriorising common isolates are those enumerated as such in a scheme of classification.

3615 POSTULATE 15. - Every subject includes a basic class. It may also include isolates which are manifestations of one or more of the five fundamental categories and also anteriorising common isolates, phase relations, and intra-facet relations.

3616 POSTULATE 16. - A subject may include many rounds of manifestation of the fundamental categories, energy, matter, and personality.

3617 POSTULATE 17. - Space and time isolates can normally occur as manifestations *qua* space and time, only in the last round of a subject.

3618 POSTULATE 18. - A subject may include many levels of manifestation of the fundamental categories, personality, and matter within any round, and space and time in the last round. The levels of personality in a round occur consecutively. So also with the levels of each of the other categories.

362 Postulates for Notational Plane

Note:- While the postulates for idea plane are suitable bases for many different schemes of classification, only postulate 24 for the notational plane can be a suitable basis for all of them. The other postulates are peculiar to CC. Similar postulates can be enunciated for other schemes as shown for UDC under postulate 21.

3621 POSTULATE 21. - The connecting symbols to be inserted before an isolate number are as shown below:

Nature of the isolate	CC	UDC
Personality	,	-
Matter	;	-
Energy	:	-
Space	.	(...)
Time	.	"..."
Anteriorising	nil	(0...)

3622 POSTULATE 22.- The connecting symbol due to be inserted before a personality isolate of level 1, immediately following the basic class number or an energy isolate number, need not be written but may be taken as understood.

3623 POSTULATE 23.- The Roman smalls used as anteriorising common isolate numbers have anteriorising quality.

3624 POSTULATE 24.- The ordinal value of any connecting symbol should be smaller than that of any substantive digit ie a digit occurring in a basic class number or an isolate number.

3625 POSTULATE 25.- Arranged in the increasing sequence of their ordinal values, the connecting symbols fall in the following sequence: 0 . : ; , –

3626 POSTULATE 26.- The digits in each of the convetional groups of symbols — Roman smalls, Indo-Arabic numerals, and Roman capitals — have their respective conventional ordinal values.

3627 POSTULATE 27.- Arranged in the increasing sequence of their ordinal values, the three conventional groups of digits fall in the following sequence: Roman smalls, Indo-Arabic numerals, Roman capitals.

3628 POSTULATE 28.- The ordinal value of the starter bracket " (" is smaller than that of 0; and the ordinal value of the arrester bracket ") " is greater than that of Z.

36291 POSTULATE 291.- The choice of any other digit or set of digits and their respective ordinal values may be determined ad hoc in the light of the findings in the idea plane.

Example:-

If the Roman capitals form the staple basis, and Greek letters are used occasionally, as for representing partial comprehensions of the main classes, β (beeta) is placed adjacent to B, λ (lamda) is placed adjacent to L, and Σ (sigma) is placed adjacent to S. This happens in CC.

363 Steps in Classifying

3630 RAW NAME OF SUBJECT.- The title as it is found on the title page or at the head of the document.

Example:-

Biological control of paddy-flower-virus in Tanjore delta.

3631 EXPRESSIVE NAME OF SUBJECT.- Name of the subject of the document got by scanning it, filling up any ellipsis found in the raw name of the subject, breaking up each derived composite term into its fundamental constituent terms corresponding to the five fundamental categories and, if necessary, corresponding to the characteristics leading to the various isolates, so as to bring out all the relevant facets.

Example:-

This step is illustrated as follows with the example in 3630. The terms introduced as a result of scanning the document and of breaking down composite terms are put within inverted commas.

Biological as a prevention step of "the disease caused by" virus "attack on the" flower of the "paddy" as in the delta "region of" Tanjore "in the first week of flowering during the winter of 1958 in agriculture".

3632 SKELETON NAME OF SUBJECT.- Expressive name of the subject got after the removal of all the auxiliary terms, the replacement of all the inflected words by their nominative forms, and thus reducing the name to a telegraphic or skeleton form.

Example:-

The expressed name of subject given in 3631 will yield the following skeleton name:- Biology control disease virus flower paddy preventive step delta Tanjore first week winter 1958 agriculture.

3633 ANALYSED NAME OF SUBJECT.- Skeleton name of the subject with the terms identified and marked as pertaining to various facets as follows:

[BC]	Basic class
[P]	Personality facet of round 1, level 1
[P2]	Personality facet of round 1, level 2
[2P]	Personality facet of round 2, level 1
[2P2]	Personality facet of round 2, level 2
[M]	Matter facet of round 1, level 1
[M2]	Matter facet of round 1, level 2
[2M]	Matter facet of round 2, level 1
[2M2]	Matter facet of round 2, level 2
[E]	Energy facet of round 1
[2E]	Energy facet of round 2
[3E]	Energy facet of round 3
[S]	Space facet of level 1
[S2]	Space facet of level 2
[T]	Time facet of level 1
[T2]	Time facet of level 2
[T3]	Time facet of level 3
[ACI]	Anteriorising isolate of level 1
[ACI2]	Anteriorising common isolate of level 2
etc.	etc. etc.

Example:-

The skeleton name of subject given in 3632 will yield the following analysed name:- Biology control [3P] disease [E] Virus [2P] Flower [P2] paddy [P] preventive step [2E] delta [S2] Tanjore [S] first week [T] winter [T3] 1958 [T] agriculture (BC).

3634 TRANSFORMED NAME OF SUBJECT. - Analysed name of the subject with the terms rearranged in the sequence prescribed by the postulates and principles.

Example:-

The analysed name of subject given in 3633 will yield the following transformed name:- Agriculture (BC) paddy [P] flower [P2] disease [E] virus [2P] prevention step [2E] biology control [3P] Tanjore [S] delta [S2] first week [T] 1958 [T2] winter [T3]

3635 STANDARDISED NAME OF SUBJECT. - Transformed name of the subject with each term replaced, wherever necessary, by the standard equivalent term as found in the schedule of the classification scheme used.

Example:-

The transformed name of subject given in 3634 will yield the following standardised name:- Agriculture (BC) rice [P] flower [P2] disease [E] virus [2P] preventive step [2E] control measure biology [3P] Tanjore [S] delta [S2] week 1 [T] 1958 [T2] winter [T3]

3636 ORDINAL SKELETON NAME OF SUBJECT. - Transformed name of the subject with each terms replaced by its facet number according to the classification scheme used.

Example:-

The standardised name of subject given in 3635 will yield the following ordinal skeleton name if CC is used:- J (BC) 381 [P] 6 [P2] 4 [E] 23 [2P] 5 [2E] 5(G) [3P] 44114 [S] 137 [S2] (O)Cl [T] N58 [T2] n7 [T3]

3637 ORDINAL NAME OF SUBJECT OR CLASS NUMBER. - Ordinal skeleton name of the subject with all the facet symbols removed and the appropriate connecting symbols put according to prescribed postulates.

Example:-

The ordinal skeleton name of subject given in 3636 will yield the following Colon ordinal name or Colon Class Number:-

J381,6:423:55(G).44114.137.(O)Cl.N58.n7

If UDC is used, the results in steps 6 and 7 will be respectively:- 63 (BC) 18 [P] ? [P2] 632 [E] 3? [2P] 632.93 [2E] ? [3P] 54114 [S] (282.6) [S2] O C2 [T] 1958 [T2] 324 [T3]

The Universal Decimal ordinal name or UDC Class Number will be:

631.8:6323?:632.93? (54114:282.6)"
O C2:1958:324

Note: This implements, the notation for intrinsic era cum duration of time in UDC, suggested in Rev doc 24, 1956, P 77 and 78, S 61 and 72.

2 the question mark "?" is put in the places where the necessary digits have not yet been prescribed in UDC.

3 the geographical number of Madras is what is recommended by India to the FID.

364 ANALYTICO-SYNTHETIC CLASSIFICATION. - Classification scheme involving analysis of subject into its facets in the idea plane, and transformation in the verbal plane, translation from the verbal to the notational plane, and synthesis of the facet numbers into class number in the notational plane.

Such a classification scheme does not usually give ready made class numbers for any but basic subject. It gives only schedules for basic subjects. It gives only schedules for schedule is thus not a monolithic one. It is a polylithic one.

3641 FACET ANALYSIS. - Analysis of a subject into its facets according to prescribed postulates, as in an analytico-synthetic classification.

3642 FACETED CLASSIFICATION. - Classification scheme based on facet analysis.

365 CLASS NUMBER. - Translation of the name of a subject in the artificial language of ordinal numbers, specified and elaborated in a classification scheme. (CC S 02).

366 CLASSIFICATORY LANGUAGE. - Artificial language of ordinal numbers forming a system of class numbers.

367 COLON LANGUAGE. - Artifical language of Colon class numbers.

368 DECIMAL LANGUAGE. - Artificial language of Decimal class numbers.

369 KNOWLEDGE CLASSIFICATION SCHEME. - Classification scheme for the universe of knowledge.

It may be analytico-synthetic or faceted; or enumerative.

3691 BASIC CLASSIFICATION. - Version of knowledge classification scheme, abbreviated just to the needs of macro-thought - ie for general libraries.

3692 DEPTH CLASSIFICATION. - Version of knowledge classification scheme, sufficiently worked out for the needs of micro-thought.

3693 VEDIC CLASSIFICATION. - Scheme of knowledge classes implied in the Upanishads and later adopted in the Puranas, the Baghavad Gita, and the Tantras.

3694 BACON CLASSIFICATION. - Scheme of knowledge classes implied in the Advance of learning (1605) of Francis Bacon.

It has influenced many of the knowledge classification schemes of the West.

3695 KANT CLASSIFICATION. - Scheme of knowledge classes implied in the Critique of pure reason (1781) of Immanuel Kant.

This is severely dichotomic.

3696 BRUNET CLASSIFICATION. - Knowledge classification scheme given in the Manual for book-sellers and book lovers (1809) of J.C. Brunet.

This is said to have influenced the classification of the Bibliotheque National of France and of the British Museum Library.

3697 HEGEL CLASSIFICATION. - Scheme of knowledge classes implied in the Logic (1812) of Hegel.
This is severely trichotomic.

3698 COMTE CLASSIFICATION. - Scheme of knowledge classes implied in the Course of positive philosophy (1830).

36991 AMPERE CLASSIFICATION. - Scheme of knowledge classes implied in the Essay on the philosophy of sciences (1834).

36992 SPENCER CLASSIFICATION. - Scheme of knowledge classes given in the Classification of sciences (1864) of Herbert Spencer.

36993 DECIMAL CLASSIFICATION. - Knowledge classification scheme designed by Melvil Dewey and published for the first time in 1876.
This is essentially an enumerative classification scheme.

36994 EXPANSIVE CLASSIFICATION. - Knowledge classification scheme designed by Charles Ammi Cutter and published for the first time in 1893.

This is essentially an enumerative classification.

36995 UNIVERSAL DECIMAL CLASSIFICATION. - Knowledge classification scheme sponsored by the International Institute of Bibliography and its successor body, the International Federation for Documentation, and published for the first time in 1896.

This uses the Decimal Classification as the core and super-imposes on it Time Facet, Space Facet, and Energy, Matter, and Personality Facets and Phases without differentiation of these.

36996 LIBRARY OF CONGRESS CLASSIFICATION. - Knowledge classification scheme designed at the Library of Congress of the United States of America and published for the first time in 1904.

This is essentially an enumerative classification with gap notation.

36997 SUBJECT CLASSIFICATION. - Knowledge classification scheme designed by James Duff Brown and published for the first time in 1906.

This is essentially an enumerative classification with some provision for facet analysis and phase analysis.

36998 COLON CLASSIFICATION. - Knowledge classification scheme along with book classification scheme designed by Shiyali Ramamrita Ranganathan and published for the first time in 1933.

This is essentially an analytico-synthetic faceted classification with full provision for facet analysis, phase analysis and anteriorising common isolates.

369991 BIBLIOGRAPHIC CLASSIFICATION. - Knowledge classification scheme designed by Henry Evelyn Bliss and published for the first time in 1935.

This has a fair element of analytico-synthetic feature and has provision for anteriorising common isolate.

37 Idea Plane: Facet and Phase

370 CLASS. - Subject ranked among the other subjects of the universe of knowledge.

3701 QUASI CLASS. - Work such as a sacred work, a classic, a literary work, or a periodical publication treated in a classification scheme and in cataloguing practice as if it were a class in the universe of knowledge.

3702 QUASI SUBJECT. - Work such as a sacred work, a classic, a literary work, or a periodical publication treated in a classification scheme and in cataloguing practice, as if it were a class in the universe of knowledge.

371 MAIN CLASS. - Class enumerated in the array of order 1, in a classification scheme for the universe of knowledge. (Prol, S 345(1)).

372 CANONICAL CLASS. - Traditional subclass of a main class, enumerated as such in a classification scheme for the universe of knowledge, and not derived on the basis of definite characteristics. (Prol, S 345(3)).

373 BASIC CLASS. - Generic name for a main or a canonical class in a classification scheme for the universe of knowledge. (Prol, S 345(4)).

374 ISOLATE IDEA. - Thought unit, which is usually a manifestation of one of the five fundamental categories or is enumerated as such and which is not a subject by itself, but yields, when added to a basic class, a subject of smaller extension than the basic class. (Prol, S 345(5)).

Example:-

Chemistry, Technology, Mining, Smithy, and Economics are basic classes. Gold, Iron, and Coal are not subjects but only isolates. Combined with a class they yield subjects such as Chemistry of Gold, Technology of Iron, Coal Mining, Economics of Gold.

3740 ARRAY-ISOLATE IDEA. - Thought unit enumerated in a single array taken by itself.

3741 SPECIAL-ISOLATE IDEA. - Isolate idea special to a basic class or to an array isolate idea — or small groups of basic classes, isolate ideas, and array isolate ideas, as the case may be — and usually denoted by special isolate terms and represented by special isolate numbers, or special array isolate terms and represented by special array isolate numbers, as the case may be.

Example:-

Wave length in radiation; design in engineering; circulatory system in medicine.

3742 COMMON ISOLATE IDEA. - Isolate idea that can be attached to several host classes, but is denoted by the same isolate term, and represented by the same isolate number, whatever be the host class.

This concept is exploited in many classification schemes.

Examples:-

Bibliography, periodical, institution, application, criticism and any geographical isolate, and any time isolate are made common isolates in CC and UDC. But they are not so made in the Library of Congress Classification.

37421 ANTERIORISING COMMON ISOLATE IDEA. - Common isolate idea whose attachment to a host class makes the resulting class have precedence, in arrangement, over the host class.

Example:-

"Bibliography of Mathematics" has precedence over "Mathematics". This is desired by the idea plane to secure helpful sequence, as one would like to consult the bibliography on a subject before selecting the regular books on it for reading.

37422 POSTERIORISING COMMON ISOLATE IDEA. - Common isolate idea whose attachment to a host class makes the resulting class succeed the host class, in arrangement.

Example:-

Criticism of work in a class succeeds the work in the class, institution pertaining to a class succeeds the class. Local treatment of a class succeeds the class.

3743 SEMINAL ISOLATE IDEA. - Isolate idea that can be attached to several host classes and represented by the same isolate number, whatever be the host class, but denoted by different isolate terms in the context of the host classes concerned.

This concept has been developed and is being exploited in CC. The endeavour of the Indian school is to replace the several schedules of special isolates by a single or few schedules of seminal isolates.

Examples:-

The digit 3 representing 'Physiology' in biological sciences, 'Syntax' in linguistics, 'Teaching technique' in education, 'Function' in political science, 'Social practices' in sociology.

This concept was originated in CC in 1925. It was denoted by the term Unscheduled Mnemonics. But in 1950, the more appropriate term 'Seminal' in the place of 'Unscheduled' was suggested by B.I. Palmer and A.J. Wells.

3744 SUPER-IMPOSED ISOLATE IDEA. - A portion of an isolate falling within the range of another co-ordinate isolate ie another isolate in the same array.

Example:-

Blood vessels of the right foot in the organ facet of medince; rural children where the isolate 'Child' is restricted by the isolate 'Rural residence' in the facet of social groups in sociology.

37441 AUTO-BIASED ISOLATE IDEA. - Superimposed isolate idea (Prol, S 237).

375 FACET. - Generic name for a basic class or an isolate idea.

3751 COMPOOUND CLASS. - Class with a basic facet and one or more isolate facets. (Prol, S 345(6)).

Example:-

Coal mining in India in 1958 is a compound class. Mining is its basic facet; "Coal" the personality facet, "India" the space facet; and "1958", the time facet.

37510 ORDER OF A COMPOUND CLASS. - Number of isolate facets in the class. (Prol, S 345(7)).
Example:-
The example in 3751 is of order 3, as it has the three isolate facets — coal, India, and 1958.

376 COMPLEX CLASS. - Class formed by the combination of two or more basic or compound classes and made to express the relation between them, but excluding the case when one of the classes forms an isolate of the other, formed by the subject device. (Prol, S 345(8)).
Example:-
Numerical solution of differential equations for designers of machinery is a complex class. But the "Chemistry" of "Apple" is not a complex class as "Chemistry" is only an energy isolate formed by subject device.

3760 ORDER OF A COMPLEX CLASS. - Number of basic or compound classes combined to form it. (Prol, S345(9)).
Example:-
The example in 376 is of order 2, as it has two compound classes, relation between which is expressed.

3761 PHASE. - A basic or a compound class forming a constituent of a complex class. (Prol, S345(8)).
Example:-
"Numerical solution of differtial equations" is one phase of the example in 3760. "Design of machinery" is its other phase.

37611 FIRST PHASE. - The phase of a complex class, which is the primary class of exposition or otherwise deemed to be primary. (CC, S8201).
Example:-
In the example of 376, "Numerical solution of differential equations" is the subject of exposition. It is therefore its first phase.

37612 SECOND PHASE. - Phase of a complex class, which is not the class of direct exposition but merely effects the exposition of the first phase. (CC, S8202).
Example:-
In the example of 376, "Design of machinery" is the second phase.

37613 PHASE RELATION. - Relation between the phases of a complex class.

3762 BIAS RELATION. - Phase relation indicating that the exposition of the first phase is biased towards the second phase, ie the exposition is specially attuned to the needs of a specialist in the subject forming the second phase, either by the selection or the arrangements of the topics, or by emphasis, or by the standard of exposition, or by the examples selected, or by other means. (CC, S82b).
Example:-
In the example of 376, the phase relation is a bias relation.

37621 BIAS PHASE. - Second phase of a complex class in which the phase relation is bias relation. (CC, S82b1).
Example:-
In the example of 376, "Design of machinery" is bias phase.

3763 COMPARISON RELATION. - Phase relation in which the first phase is compared with the second phase. (CC, S82c).

37631 COMPARISON PHASE. - Second phase of a complex class in which the phase relation is comparison relation. (CC, S82c1).

3764 DIFFERENCE RELATION. - Phase relation in which the difference between the first phase and the second is expounded. (CC, S82d).

37641 DIFFERENCE PHASE. - Second phase of a complex class in which the phase relation is difference relation. (CC, S82d1).

3765 INFLUENCING RELATION. - Phase relation in which the influence of the second phase on the first is expounded or the first phase is expounded as influenced by the second phase. (CC S82g).
Example:-
"Geopolitics" is exposition of "Political

formation and development" as influenced by geographical factors. Here the phase relation is influencing relation.

7651 INFLUENCING PHASE. - Second phase of a complex class in which the phase relation is influencing relation. (CC, S82g1).
Example:-
In the example in 3765 "Geographical factors" is the influencing phase.

766 GENERAL RELATION. - Phase relation of a more or less comprehensive or non-descript kind between the two phases. (CC, S82a).

7661 GENERAL RELATION PHASE. - Second phase of a complex class in which the phase relation is general phase relation. (CC, S82a1).

77 COMPLEX ISOLATE. - Isolate formed by the combination of two or more isolates in the same facet of a basic class to express the relation between them, but excluding the case when the extension of the one of the isolates is merely restricted without bringing out any relation between them. (CC, S841).
Example:-
"Physiological anatomy" has "Medicine" as its implied basic class. It itself is energy isolate. It is a complex isolate as it expounds the relation between the two energy isolates, "Physiology" and "Anatomy".

771 INTRA-FACET RELATION. - Relation between the component isolates of a complex isolate. (CC, S84).

772 INTRA FACET BIAS RELATION. - Intra-facet relation indicating that the exposition of the first component isolate is biased towards the second, ie the exposition is specially attuned to the needs of a specialist in the second component isolate, either by the selection or the arrangement of the topics, or by emphasis, or by the standard of exposition, or by the examples selected or by other means. (CC, S84b).
Example:-
In the example under 377, the intra-facet relation is bias relation.

37721 BIAS ISOLATE. - The second constituent isolate of a complex isolate in which the intra facet relation is bias relation. (CC, S84b1).
Example:-
In the example under 377, "Physiology" is bias isolate.

3773 INTRA-FACET COMPARISON RELATION. - Intra-facet relation in which the first component isolate is compared with the second. (CC, S84c).
Example:-
Comparison of city folk and rural folk has "Sociology" as its basic subject, and denotes infra-facet comparison relation, as both the isolates "Rural folk" and "City folk" are isolate in the same personality facet.

37731 COMPARISON ISOLATE. - The second constituent in a complex isolate in which the intra-facet relation is comparison relation. (CC, S84c1).

3774 INTRA-FACET DIFFERENCE RELATION. - Intra-facet relation in which the difference between the first constituent isolate and the second is expounded. (CC, S84d).

37741 DIFFERENCE ISOLATE. - The second constituent in a complex isolate in which the intra-facet relation is difference relation. (CC, S84d1).

3775 INTRA-FACET INFLUENCING RELATION. - Intra-facet relation in which the influence of the second constituent isolate over the first is expounded or the first constituent isolate is expounded as influenced by the second. (CC, S84g).
Example:-
"Influence of school organisation on teaching technique" has "Education" as its basic subject and denotes intra-facet influencing relation as both "Teaching technique" and "Organisation" are isolates in the same energy facet.

37751 INFLUENCING ISOLATE. - The second constituent in a complex isolate in which the intra-facet relation is influencing relation. (CC, S84g1).

Example:-
In the example under 3775 "Organisation" is influencing isolate.

3776 INTRA-FACET GENERAL RELATION. - Intra-facet relation of a more or less comprehensive or non-descript kind between the two constituent isolates. (CC S84a).

37761 GENERAL RELATION ISOLATE. - The second constituent isolate in a complex isolate in which the intra-facet relation is general relation. (CC, S84al)

378 Notational Plane

3781 DIGIT. - Each one of the distinct basic or primary symbols taken by itself occurring in a class number or used in constructing it. (Prol, S181).

3782 CONNECTING SYMBOL. - Symbol used only as a connective or as a conjunction in a classificatory language. (Prol, S 3615).
Example:-
See section 3621.

3783 SUBSTANTIVE DIGIT. - Digit other than a connecting symbol used in a classificatory language. (CC, S0213).
Example:-
Roman smalls and Arabic numerals and Roman capitals in CC; and Indo-Arabic numerals in UDC.

3784 OCTAVISING DIGIT. - The last digit in a conventional set of digits, reserved for the formation of a further octave and given any other semantic value. (CC, S0214).
Example:-
9 among Indo-Arabic numerals and y & z among Roman letters.

3785 SIGNIFICANT DIGIT. - Substantive digit other than an octavising digit and having a semantic significance. (CC, S0216).

3786 ANTERIORISING DIGIT. - Digit, the addition of which at the end of a class number (hereinafter referred to as host class number) makes the ordinal value of the resulting class number smaller than that of the host class number. (CC, S0251).
Example:-

Roman smalls in CC. B33:3a comes anterior to B33:3. FID/CA has recommended the use of ' (0 ' as anteriorising symbol in UDC.

3787 STARTER. - Symbol inserted at the beginning of a subject-device number. (Prol, S36144).

3788 ARRESTER. - Symbol inserted at the end of a subject-device-number. (Prol, S36144).
Example:-
Circular brackets are used as starter and arrester in CC. FID/CA has recommended the use of square brackets as starter and arrester in UDC.

37891 GAP DEVICE. - Device of leaving a finite gap between two array-isolate numbers of two array-isolate ideas appearing to be consecutive at the time of the enumeration, in order to accommodate new isolates, as the case may be, claiming its filiatory place within that gap. (Prol, S233).
Example:-
Library of Congress Classification uses this device extensively.

37892 INTERPOLATION DEVICE. - Device of interpolating between two consecutive digits of one species a digit of another species and defining its cardinal value accordingly. (Prol, S2231).
Example:-
CC uses this device sparingly, for this purpose. It usually draws digits from the Greek alphabetic.

37893 OCTAVE DEVICE. - Device of reserving the last digit in a species of digits as a non-significant digit to form another octave or stretch of coordinate digits by adding to it the successive digits of the species and deeming the result of the double-digited numbers as if frozen into a single digit, and repeating this process to form successive octaves. (Prol, S2232).

CC had adopted this device from the beginning consciously. It has now been adopted by FID for UDC, 37894 GROUP NOTATION DEVICE. - Device of using ordinal decimal fraction numbers of two or more digits but the same number of significant digits to represent a number of co-ordinate isolates or array-isolates, when they are too many to be represented conveniently by octave device alone. (Prol, S368).

CC has begun to employ this device consciously since it was studied in 1954.
Example:-
381 for "Rice" and 382 for "Wheat".

38 Focus

380 FOCUS. - Generic term to denote class or isolate or array-isolate, in all the three planes — idea plane, verbal plane, and notational plane. (Prol, S345(10)).

3801 SHARPENING A FOCUS. - Decreasing the extension of a class, isolate, or array-isolate by the introduction of additional facet(s) or phase(s) or on the basis of additional characteristic (s).

3802 HOST FOCUS. - Class or isolate, or array-isolate being sharpened.

Sharpening Devices for Idea Plane

381 FACET DEVICE. - Device for sharpening a host focus in the form of a class by the addition of new facet(s). (Prol, S235).

382 PHASE DEVICE. - Device for sharpening a host focus in the form of a class by the addition of phase(s). (Prol, S236).

3821 INTRA FACET RELATION DEVICE. - Device for sharpening a host focus in the form of an isolate, by the addition of an intra-facet relation constituent focus.

383 SUPER-IMPOSITION DEVICE. - Device for sharpening a focus in the form of an isolate by restriction the extension of one isolate to the portion of it falling within another isolate of the same category. (Prol, S237).

3831 AUTO-BIAS DEVICE. -
tion device.

384 CHRONOLOGICAL DE
forming an isolate or sharp
in the form of an isolate or
on the basis of chronologic
such as the epoch of birth
investigation or initiation,
or occurrence or any other

385 GEOGRAPHICAL DEV
forming an isolate or sharp
in the form of an isolate or
on the basis of geographica
such as place of origin or
valence or any other releva
association.

386 SUBJECT DEVICE. -
ing an isolate or sharpenin
the form of an isolate or a
the basis of subject charac
and sufficient to denote the

387 ALPHABETICAL DEV
forming an isolate or sharp
in the form of an isolate or
the basis of its name in int
the characteristic.

388 ENUMERATION DEVI
forming the classes or the
or the array-isolates in an
enumerating them.

3881 ENUMERATIVE CLAS
Classification scheme in w
classes are enumerated ad
the enumeration being rest
enumeration of the basic cl
isolates of various categori

Its schedule is monolithic a

Sharpening Device
Notational Pla

3890 DECIMAL FRACTION
of taking the place value of
numeral in a number as in
fraction, though the decima
actually put in front of it.

FACET DEVICE. - Device of prefixing
an isolate number in a class number a
onnecting symbol, in order to implement
e facet device of the idea plane. (Prol,
235).

. PHASE DEVICE. - Device of inserting
onnecting symbol before the digit repre-
enting a phase relation in the idea plane.
Prol, S236).

1 INTRA-FACET RELATION DEVICE. -
evice of inserting connecting symbol be-
re the digit representing intra-facet rela-
ion in the idea plane.

SUPER-IMPOSITION DEVICE. - Device
f inserting a hyphen between the isolate
umbers representing the isolates involved
n the alphabetical device of the idea plane.
Prol, S237).

1 CHRONOLOGICAL DEVICE. - Device of
dding to the host isolate number or array
solate number the chronological number
equired to implement the chronological
evice of the idea plane. (Prol, S2233).

5 GEOGRAPHICAL DEVICE. - Device of
dding to the host isolate number or array
solate number the geographical number re-
uired to implement the geographical device
f the idea plane. (CC, S684).

SUBJECT DEVICE. - Device of adding to
he host isolate number or array-isolate
umber, the number of the subject required
o implement the subject device of the idea
lane, and enclosing the number of that sub-
ect within brackets, so that the said subject
umber may be taken as frozen and treated
s it were a single digit. (Prol, S36141).

1 PACKET NOTATION. - Subject number
nclosed in brackets in the use of the subject
evice. (Prol, S36411).

C is using circular brackets to form the
acket. The FUD/CA (the Committee on
eneral Theory of Classification of the
nternational Federation for Documentation
as recommended the use of square
rackets to form the packet. (Rev doc 22,
956, 156, section 2 of the minutes of FID/
A).

3897 ALPHABETICAL DEVICE. - D
adding to the host isolate number o
isolate number, the first, or the fi
or the first three etc initial letters
international name of an isolate or
array-isolate to be formed by the a
betical device of the idea plane; an
alphabetical part may be taken as f
and treated as if it were a single di
(Prol, S36141).

3898 see Page 100.

391 Zone Analysis

3910 ZONE. - A portion of an array
all the isolates are array isolates
med by one and the same device.
S362-368).

3911 ENUMERATED ISOLATES. - A
lates of an array got by enumerati

3912 DEVICED ISOLATES. - Array
of an array got by chronological or
cal or subject device.

3913 ENUMERATED COMMON ISO
Common isolates got by enumerati
Examples:-
Time isolates, space isolates,
ising common isolates and pos
common isolates.

3914 DEVICED COMMON ISOLATE
mon isolates got by subject device

3915 ENUMERATED SPECIAL ISO
Special isolates got by enumeratio

3916 DEVICED SPECIAL ISOLATE
cial isolates got by chronological
betical device.

39161 ZONE 1 OF ARRAY. - The zo
array made up of enumerated com
lates.

39162 ZONE 2 OF ARRAY. - The zor
array made up of enumerated spec
lates.

39163 ZONE 3 OF ARRAY. - The zor
array made up of deviced special

3898 Chart of Equivalent Terms

Note: The definition is given in appropriate places to the terms in the Idea Plane only.

Generic	In the Idea Plane	In the Verbal Plane	In the Notational Plane
Focus	Class Isolate Idea Array Isolate Idea	Subject Isolate Term Array Isolate Term	Class Number Isolate Number Array Isolate Number
Basic Focus	Basic Class	Basic Subject	Basic Class Number
Main Focus	Main Class	Main Subject	Main Class Number
Canonical Focus	Canonical Class	Canonical Subject	Canonical Class Number
Isolate	Isolate Idea	Isolate Term	Isolate Number
Common Isolate	Common Isolate Idea	Common Isolate term	Common Isolate Number
Anteriorising Common Isolate	Anteriorising Common Isolate Idea	Anteriorising Common Isolate Term	Anteriorising Common Isolate Number
Posteriosing Common Isolate	Posteriorising Common Isolate Idea	Posteriorising Common Isolate Term	Posteriorising Common Isolate Number
Array Isolate	Array Isolate Idea	Array Isolate Term	Array Isolate Number
Facet	Basic Class Isolate Idea	Basic Subject Isolate Term	Basic Number Isolate Number
Compound Focus	Compound Class	Compound Subject	Compound Class Number
Complex Focus	Complex Class	Complex Subject	Complex Class Number
Complex Isolate	Complex Isolate Idea	Complex Isolate Term	Complex Isolate Number
Biasing Focus	Biasing Class	Biasing Subject	Biasinc Class Number
Comparison Focus	Comparison Class	Comparison Subject	Comparison Class Number
Difference Focus	Difference Class	Difference Subject	Difference Class Number
Influencing Focus	Influencing Class	Influencing Subject	Influencing Class Number
General Relation Focus	General Relation Class	General Relation Subject	General Relation Class Number
Biasing Isolate	Biasing Isolate Idea	Biasing Isolate Term	Biasing Isolate Number
Comparison Isolate	Comparison Isolate Idea	Comparison Isolate Term	Comparison Isolate Number
Difference Isolate	Difference Isolate Idea	Difference Isolate Term	Difference Isolate Number
Influencing Isolate	Influencing Isolate Idea	Influencing Isolate Term	Influencing Isolate Number
General Relation Isolate	General Relation Isolate Idea	General Relation Isolate Term	General Relation Isolate Number

39164 ZONE 4 OF ARRAY. - The zone of the array made up of deviced common isolates.

4 UNIVERSE OF DOCUMENTS

Note:- Most of the terms in this chapter were brought into use in first edition of CC in 1933. But the references are given here only to editions 5 of CC (1957).

400 ULTIMATE CLASS. - Class of the smallest extension admitted by a scheme of classification, into which a document can be placed. (CC, S027).

BOOK NUMBER

40 BOOK NUMBER. - Ordinal number which fixes the position of a document relatively to the other documents having the same ultimate class. (CC, S03).

Book number individualises the document among the documents having the same class number. It is used for mechanising the replacing of a document in the correct position among the documents having the same class number.

41 LANGUAGE NUMBER. - Ordinal number into which the name of the language, in which a document is expounded, is translated. (CC, S031).

410 LANGUAGE FACET. - Part of the book number of a document, which is its language number.

411 FAVOURED LANGUAGE. - Language in which the majority of the books in a library are written. (CC, S0311).

412 MOST POPULAR LANGUAGE. - Language, among a given set of languages, occurring earliest in the scale of popularity of languages, maintained by a library. (CC, S0312).

413 SCALE OF POPULARITY OF LANGUAGES. - Descending scale of popularity of the languages, maintained by a library on the basis of their respective uses as the medium in the exposition of its documents. (CC, S0312).

42 FORM NUMBER. - Ordinal number, into which the name of the form of exposition of document, is translated. (CC, S032).

420 FORM FACET. - Part of the book number of a document, which is its form number.

43 YEAR NUMBER. - Ordinal number, into which the year of publication of a document, is translated. (CC, S033).

430 YEAR FACET. - Part of the book number of a document, which is its year number.

44 ACCESSION NUMBER. - Integral number which denotes the sequence of accessioning of a document, which shares the same ultimate class and the same form number, language number, and year number with other documents. (CC, S033).

440 ACCESSION FACET. - Part of the book number of a document, which is its accession number.

45 VOLUME NUMBER. - Integral number within the book number of a volume of a multi-volumed book, individualising the said volume in the set. (CC, S03511).

450 VOLUME FACET. - Part of the book number of a document, which is its volume number.

46 SUPPLEMENT NUMBER. - Integral number within the book number of a book, which individualises the said supplement from the host volume and the other supplements. (CC, S0362).

460 SUPPLEMENT FACET. - Part of the book number of a document, which is its supplement number.

47 COPY NUMBER. - Integral number within the book number of a copy of a document of which there are two or more copies, individualising the said copy. (CC, S037).

48 CRITICISM NUMBER. - Cardinal number within the book number of a document, which is a critical study or a review, or a rejoinder to a pedestrian document or belongs to a chain of such polemical documents centering round the pedestrian document, individualising the said document. (CC, S038).

480 CRITICISM FACET. - Part of the book number of a document, which is its criticism number.

Collection Number

490 COLLECTION. - One of the several sequences, other than the main classified sequence, in which some of the books of a library have to be kept, for administrative, safety, facility-for-use reasons. (CC S04 and 041).

Examples:-

Pamphlet or undersized collection, oversized collection, rare book collection, reading room collection, mathematics department collection, browsing collection, etc. A collection may be permanent or temporary.

491 COLLECTION NUMBER. - Symbol to denote the collection, other than the normal collection forming the main classified sequence, to which a book belongs. (CC, S041).

4991 CALL NUMBER. - Ordinal number which fixes the position of a document relatively to the other documents. (CC, S01).

Call number is a combination of the class number of the subject expounded in the document plus the book number of the document plus if necessory the collection number of the document.

4992 PRESS MARK. - Symbol which indicates the position of a document in the book shelves in stack-room or in the filing cabinet or in any other receptacle where the documents are kept.

5 CONTACT WITH CATALOGUE

50 CHAIN FORMATION. - Representation of a class number in the form of a chain, according to the following procedure:-

1 Make;
11 the First Link, out of the first digit;
12 the Second Link, out of the first two digits;
13 the Third Link, out of the first three digits, and so on up to the last link which is to be made of all the digits.

2 Write the Links one below the other in succession;
21 Write against each link its translation into natural language - ie the name of the class of which the link is the class number;
22 Connect each link with its translation by an " = " sign.

3 Joing the " = " sign of each link with that of the next succeeding link by a downward arrow. (CCC, S320).

Example:-

O111, 2J64, 52 = Othello
↓
O = Literature (Sought Link)
↓
O1 = Indo-European Literature (Unsought link)
↓
O11 = Teutonic literature (Unsought link)
↓
O111, = English Literature (Sought link)
↓
O111 = (False Link)
↓
O111, 2 = English Drama (Sought link)
↓
O111, 2J = (Fused link)
↓
O111, 2J6 = (Fused link)
↓
O111, 2J64 = Shakespeare (Sought link)
↓
O111, 2J64, = (False link)
↓
O111, 2J64, 5 = Fifth Octave of the Shakespearean plays (Unsought link)
↓
O111, 2J64, 52 = Othello (Sought link)

51 LAST LINK. - Link occurring last in the chain produced by a class number. (CCC, S321).

Example:-
In the chain given under Sec 50, "O111, 2J64, 52 = Othello" is the last link.

52 FALSE LINK. - Link

1 which is not a class number — ie, it is not a concatenation of digits, intelligible according to the rules of classification–that is, it has no meaning; or

2 which is the last link of a compound class number and does not have a name in the verbal plane, in common usage in a natural language. (CCC, S322).

Example:-
In the chain given under Sec 50, the following are false links:

O111, = (False link)
O111, 2J64, = (False link)

Consider the following chain of the class number V4.N5

V = History (Sought link)
V4 = History of Asia (Sought link)
V4. = (False link)
V4.N = (False link)
V4.N5 = (False link)

53 FUSED LINK. - Link within a part of a class number, the part being obtained by
1 chronological device;
2 geographical device;
3 subject device;
4 alphabetical device;
5 phase device; or
6 intra-facet relation device;

which should be treated as a whole, as if it were a single digit. (CCC, S323).

Example:-
In the chain given under Sec 50, the following are fused links:

O111, 2J = (Fused link)
O111, 2J6 = (Fused link)

531 FUSED CHRONOLOGICAL LINK. - Link ending within a part of a class number, which is obtained by the chronological device. (CCC, S323).

532 FUSED GEOGRAPHICAL LINK. - Link ending within a part of a class number, which is obtained by geographical device and the whole of the geographical number has to be treated as if it were a single digit. (CCC, S323).

533 FUSED SUBJECT LINK. - Link ending within a part of a class number, which is obtained by subject device. (CCC, S323).

534 FUSED ALPHABETICAL LINK. - Link ending within a part of a class number, which is obtained by alphabetical device. (CCC, S323).

535 FUSED INTRA-FACET RELATION. - Link ending within a part of a class number, which is obtained by intra-facet relation device. (CCC, S323).

54 UNSOUGHT LINK. - Link which

1 ends with a part of the isolate focus in a facet of a class number; and

2 represents a subject on which reading material is not likely to be produced or sought or which is not likely to be looked up by any reader seeking materials on the specific subject forming the last link of the full class number. (CCC, S324).

This Rule admits of local variation in its application. In the light of the reading materials organised, the interest of the readers served, and the nature of the service attempted, each library may define in an exact way suited to itself the links which should be deemed to be unsought links. This more precise local definition should be consistently followed. A similar local definition may also be made by an organisation engaged in the production of international or national bibliographies, of union catalogue of books and/or of periodical publications.

55 SOUGHT LINK. - Link which is neither false, nor fused nor un-sought and link ending with an after-time anteriorising common isolate digit. (CCC, S325).

551 EFFECTIVE LINK. - Sought link. (Theory, P117). This term was replaced by "sought link" in 1954.

56 UPPER LINK. - Link other than the last link. (CCC, S326).

57 LOWER LINK. - This term is a relative one when two links are engaging attention. Lower link is that one of the two links which occurs lower in a chain than the other of the two links. (CCC, S327).

591 TELESCOPED ARRAY. - An array of isolates in a schedule of classification, made of an isolate and its sub-isolates, as viewed from the idea plane, but whose isolate numbers appear to be co-ordinate ones, as viewed from the notational plane. (CCC, S3191).

Example:-

Consider the following array of the isolates in the natural group of plants facet in Botany in CC and UDC:

CC No	Isolate Term	UDC No
1	Cryptogamae	21
2	Thallophyta	22
3	Bryophyta	32
4	Pteridophyta	35
5	Phanerogame	41
7	Monocotyledon	52
8	Dicotyledon	61

Here, cryptogamae and phanerogamae belong to array of order 1, and all the other isolates belong to an array of order 2, as viewed from the idea plane. But as viewed from the notational plane it is easily seen that both the groups of isolates belong to an array of order 1 in CC and of order 2 in UDC, as the number of digits in the respective isolate numbers show.

592 ISOLATE-AT-TELESCOPING-POINT. - The isolate in a telescoped array, of which succeeding isolates in the array are sub-isolates. (CCC, S31911).

Example:-

In the telescoped array given as example in Sec 591, the following are isolates-at-telescoping-points:

1 Cryptogamae
2 Phanerogamae

593 LINK-AT-TELESCOPING-POINT. - A link in a telescoped chain, whose class number ends with a digit representing an isolate-at-telescoping-point. (CCC, S3291).

594 CHAIN-WITH-GAP. - A chain of isolates in a schedule of classification, in which an intermediate isolate is not given, as a result of failure to conform to the canon of modulation. (CCC, S3192).

Example:-

In Decimal Classification 2 Religion, 22 Sacred Books, 225 New Testament, is a Chain-with-Gap, as the Isolate "Christianity" is missing between 2 Religion and 22 Sacred Books.

595 MISSING ISOLATE. - The isolate missing in a chain-with-gap. (CCC, S31921).

Example: -

In the Chain-with-Gap given as example under Sec 594 "Christianity" is Missing Isolate, its Isolate Number may be written as 22|28.

596 MISSING LINK. - A link in a chain-with-gap, corresponding to the missing isolate in the chain. (CCC, S3292).

597 CHAIN PROCEDURE. - Procedure for determining the class index entries, the specific subject entries, and the see also subject entries of a document from its class number and the class number of the cross reference entries provided for it. (CCC, Part 3).

6 CONTACT WITH MACHINE SEARCH

61 Machine

610 MACHINE FOR SEARCH. - Mechanical aid for searching entries of sought documents, in a list of documents.

Examples:-

1 Machines involving holes punched in cards;

2 Magnetic spots in steel;

3 Magnetised and unmagnetised segments in a steel wire; and

4 Pattern of transparent spots in a cinema film.

611 PUNCHED CARD. - Card with holes punched in particular positions, each punched hole representing a particular idea, basic subject, isolate, or term, and admitting of mechanical sorting.

612 COMPUTER. - 1 Machine designed to calculate – ie perform a sequence of arithmetical or logical operations.

2 Machine designed to receive and store pieces of information, manipulate them in assigned ways, and supply the result of the manipulation.

613 INSTRUCTION. - Information which, when coded and fed as a unit into a digital computer, causes it to perform a sequence of manipulations.

6131 PROGRAM. - Sequence of instruction to a digital computer to solve a problem.

614 MEMORY. - Device into which information can be fed for extraction at a later time, and which usually forms an integral part of a computer.

615 MEMORY CAPACITY. - Maximum number of distinguishable stable states in which a memory device can exist, the measure of the capacity being given as the logarithm to base 2 of that maximum number.

62 Preparation Phase

620 PREPARATION. - Sequence of steps in which

1 documents are analysed into their relevant facets ie basic class and isolates;

2 the facets are coded; and

3 the code is fed into an appropriate scanning medium to be scanned by a machine whenever required.

621 INDEXING. - The first step in the preparation phase involving the technique of

1 perusing documents and spotting out the relevant facets in them;

2 choosing the standard term to denote each of the facets;

3 giving a location or identification symbol of the document concerned, as an index number to the several terms arising in 2; and

4 alphabetising the terms, pertaining to all the documents of the collection, along with their respective index numbers.

622 EDITING. - The second step in the preparation phase involving the technique of expressing, either by indicators or by the formation of sequences, the relation between appropriate facets figuring in the index.

623 CODING. - Rendering the index entries into non-graphic physical symbols suited to the machine.

Example:-

Punching holes in a card; making magnetic spots.

6231 MACHINE LANGUAGE. - Code language in non-graphic physical symbols suited to the machine handling them in accordance with prescribed program.

62310 MACHINE WORD. - Unit of information involving the standard number of distinct or primary code digits, which a digital computer regularly handles in each operation.

6232 BINARY CODE. - Code with only two primary code digits-equivalent to "yes" and "no", respectively, for example.

6233 ALPHABETICAL CODE. - System of abbreviation used in preparing information for input or feeding into a machine, so that information may be extracted in letters and words.

6234 CODE DICTIONARY. - Dictionary giving code symbols for the technical terms usually occurring in learned papers and their abstracts.

625 INPUT. - Information fed into the internal memory of the computer.

626 COMPUTER. - Machine which translates in one kind of language suitable to a machine into another kind of language also suitable to a machine.

Example:-

Machine which translates information expressed in punched cards into the same expressed in magnetic tape.

63 Exploiting Phase

630 EXPLOITATION. - Sequence of steps in which

1 the information sought is stated in a standard form;

2 the statement of information is analysed from the angle of the machine; .

3 the program of instruction is fed into the machine;

4 the entries of the relevant documents are searched by the machine; and

5 the findings in the search are utilised.

6301 INFORMATION RETRIEVAL. - Exploitation.

631 STATEMENT. - Enunciation, in a standard form, of the information for which the entries should be located and brought out by the machine.

632 INTERPRETATION. - Analysis cf the information sought into facets along with their relation and expression of it in the machine language.

633 AUTOMATIC PROGRAMMING. - Technique whereby the computer itself is used for transforming the program from a form suited to the human mind to a form suited to the efficient functioning of the computer.

634 SEARCH. - Passing through the machine the medium in which entries are coded, in order to locate the relevant entries.

635 OUTPUT. - Information transferred from the internal memory of the computer to the outside in a form suited to the human mind.

64 Efficiency Measure

641 RESOLUTION FACTOR. - Ratio of the number of selected documents to the total number of documents searched.

642 ELIMINATION FACTOR. - Ratio of the number of rejected documents to the total number of documents searched.

643 PERTINANCE FACTOR. - Ratio of the number of relevant documents among the selected documents to the total number of documents selected.

644 NOISE FACTOR. - Ratio of the number of irrelevant documents among the selected documents to the total number of documents selected.

645 RECALL FACTOR. - Ratio of the number of relevant documents selected to the total number of relevant documents for which the machine had been fed with entries.

646 OMISSION FACTOR. - Ratio of the number of relevant documents not selected to the total number of relevant documents for which the machine had been fed with entries.

65 Service Phase

650 SERVICE. - Supplying copies of the documents sought by the reader with the aid of automatic equipment, in which the machine

1 gets activated by the location or the identification symbol of the document sought;

2 inspects the film roll containing a photographic record of the document along with their respective location or identification symbol; and

3 provides a photographic reproduction of the record of the document selected.

651 RAPID SELECTOR. - Machine designed to scan film reel at a great speed.

652 CYBERNETICS. - Comparative study of the communication system made of the brain and the nervous system, and the communication system made of a mechano-electrical system such as a computing machine.

653 TELE-COMMUNICATION SERVICE. - Service in which the copy of the document selected is read out and made audible or is made visible to the reader at a distant place or is typed out at the consumer's end.

The possibility and desirability of this service has been suggested in CCMS, (CCMS, S37).

7 NORMATIVE PRINCIPLES

Note:- Most of the canons were formulated for the first time in the first edition of the Prol (1937). But the references are given in this chapter only to the second edition of 1957.

71 Canons for Characteristics

711 CANON OF DIFFERENTIATION. - The canon requiring that a characteristic used as the basis for the classification of a universe should differentiate some of its entities — that is, it should give rise at least to two classes. (Prol, S13).

Example:-

In the universe of men, height is a characteristic that differentiates; but the possession of a face is not a characteristic that differentiates.

712 CANON OF CONCOMITANCE. - The canon requiring that no two characteristics used in succession as the basis for the classification of a universe should be concomitant - that is, they should not give rise to the same array of classes. (Prol, S132).

Example:-

In the universe of men, the characteristics, age and year of birth, should not be used as successive basis for classification, as they will both give rise to the same array. But the characteristics height and age can be used in succession, as they will give rise to two different arrays.

713 CANON OF RELEVANCE. - The canon that a characteristics used as the basis for the classification of a universe should be relevant to the purpose of the classification. Prol, S133).

Example:-

In the universe of books, if the purpose of classification is to help readers, the subject-matter, the language of exposition, the year of publication, and the name of author may be relevant characteristics as the basis of classification. But the thread and the tape used for stitching, the mode of stitching, the board and the covering materials used for binding, and the tooling on the back, are not relevant characteristics. However, they may be relevant if the purpose of classification is to help the binding trade.

714 CANON OF ASCERTAINABILITY. - The canon that a characteristic used as the basis for the classification of a universe should be definitely ascertainable. (Prol, S134).

Example:-

In the universe of poets, the year of birth is ascertainable and is therefore eligible for use as the basis of its classification. But the year of death is not, as it can not be ascertained with certainty in the case of living authors even with the aid of astrologers and palmists.

715 CANON OF PERMANENCE. - The canon that a characteristic used as the basis for the classification of a universe should continue to be ascertainable and unchanged, so long as there is no change in the purpose of classification. (Prol, S151).

Example:-

Classification of the territory of a country on the basis of its physical features satisfies this canon. But its classification on the basis of its political and administrative divisions often violates this canon. And yet, the latter is a relevant one for most purposes.

716 CANON OF RELEVANT SEQUENCE. - The canon that the characteristics used as the basis of classification of a universe should be used successively in a sequence relevant to the purpose of the classification. (Prol, S136).

Example:-

In classifying books on literature, the four characteristics language, form, author, and work, may be used as the basis. Using them in the sequence mentioned above is more helpful to the majority of readers than any of the other 23 possible sequences.

717 CANON OF CONSISTENCY. - The canon that the characteristics used as the basis for classification of a universe should be used successively in the same sequence, so long as there is no change in the purpose of the classification. (Prol, S137).

Example:-

We should not use the sequence language, Form, Author, and Work in classifying some of the books on literature, and the sequence Language, Author, Form, and Work, in the case of some other books on literature.

72 Canons for Array

721 CANON OF EXHAUSTIVENESS. - The canon that the classes in an array of classes should be totally exhaustive of their common immediate universe. (Prol, S141).

722 CANON OF EXCLUSIVENESS. - The canon that the classes in an array of classes should be mutually exclusive. (Prol, S142).

Example:-

The classification of professors into the single array — mathematicians, geologists, dull lecturers, and brilliant lecturers — violates this canon.

723 CANON OF HELPFUL SEQUENCE. - The canon that the classes in an array should be helpful to those to whom it is intended. (Prol, S143).

724 CANON OF CONSISTENT SEQUENCE. - The canon that if similar classes occur in different arrays, their sequences should be parallel in all the arrays, unless there is an positive difference, in purpose and helpfulness. (Prol, S144).

73 Canons for Chain

731 CANON OF DECREASING EXTENSION. - The canon that while moving down a chain of classes, from its link to its last, the intension of the classes should increase and their extension should decrease at each step. (Prol, S151).

732 CANON OF MODULATION. - The canon that a chain of classes should comprise a class of each and every order that lies between the orders of first and last links. (Prol, S152).

74 Canons for Filiatory Sequence

741 CANON FOR SUBORDINATE CLASSES. - The canon that all the subordinate classes of a class or the subordinate isolates of an isolate or an array-isolate in whatever chain they may occur, should immediately follow it without being separated from it or among themselves by any other classes, isolates, or array isolates as the case may be. (Prol, S161).

742 CANON FOR CO-ORDINATE CLASSES. - The canon that among the classes or the isolates of an array no class or isolate with less affinity should come between two classes or arrays with greater affinity. (Prol, S162).

743 FILIATORY SEQUENCE. - Sequence of classes, isolates, or array of isolates created by the classification of the universe of knowledge or of the universe forming a region of the universe of knowledge, or of an isolate or of an array isolate such that the canons for filiatory sequence are satisfied.

744 APUPA ARRANGEMENT. - Arrangement complying with the pattern Alien, Penumbral, Umbral, Penumbral, Alien, — ie starting with the class or the isolate or the array-isolate of primary interest to the reader at the moment on either side of it following successively the classes or the isolates, the array isolates of progressively decreasing interest to him, until they fade out into classes not of interest to him. (Prol, S444)

7441 UMBRAL REGION. - The region in an arrangement consiting of the class or the isolate or the array-isolate of primary interest to the reader at the moment. (Prol, S444).

7442 PENUMBRAL REGION. - The region in an arrangement on either side of the umbral region consisting successively of classes or isolates or array-isolates of progressively decreasing interest to the reader at the moment. (Prol, S444).

7443 ALIEN REGION. - The region in an arrangement consisting on either side of the umbral region, beyond the penumbral regions concerned, consisting of classes or isolates or array-isolates not of interest to the reader at the moment. (Prol, S444).

745 EVERYWHERE APUPA ARRANGEMENT. - Arrangement presenting an apupa arrangement, whichever class or isolate or array-isolate is taken to be the umbral region. (Prol, S444).

75 Canons for Terminology

751 CANON OF CURRENCY. - The canon that the term used to denote a class in a scheme of classification should be the one currently accepted by those specialising in the universe to which the scheme is applicable. (Prol, S171).

752 CANON OF RETICENCE. - The canon that the term used to denote a class in a scheme of classification should not be critical. (Prol, S172).

753 CANON OF ENUMERATION. - The canon that the denotation of a term in a scheme of classification should be decided and should be left to be decided in the light of or through the subclasses (lower links) enumerated in the various chains having the class denoted by term as their common link. (Prol, S173).

754 CANON OF CONTEXT. - The canon that the denotation of a term in a scheme of classification should be decided and should be left to be decided in the light of the different classes of lower order (upper links) belonging to the same primary chain as the class denoted by the term. (Prol, S174).

76 Canons for Notation

761 CANON OF RELATIVITY. - The canon that the number of digits in a class number should be proportional to the order of the class it represents. (Prol, S1881).

762 CANON OF EXPRESSIVENESS. - The canon that there should be in a class number a digit to represent each change of facet and each characteristic of the characteristics used in constructing the class number. (Prol, S1882).

763 CANON OF MIXED NOTATION. - The canon that the base of the notation of a scheme of classification should consist of more than 1 species of conventional digits. (Prol, S1883).

77 Canons for Knowledge Classification

771 CANON OF HOSPITALITY IN ARRAY. - The canon that the construction of a class number should admit of an infinite number of new co-ordinate classes being added to the array to which it belongs at appropriate filiatory places, without disturbing the existing class number in any way. (Prol, S221).

772 CANON OF HOSPITALITY IN CHAIN. - The canon that the construction of a class number should admit of an infinite number of new class numbers being added at the end of the chain to which it belongs, without disturbing the existing class numbers in any way. (Prol, S231).

773 GENERAL CANON OF MNEMONICS. - The canon that the digit(s) used to represent a specified concept in a class number should be the same in all class numbers having that concept represented in them, provided that insistence on such consistent representation does not violate more important requirements. (Prol, S241).

774 CANON OF VERBAL MNEMONICS. - The canon that the alphabetical device may be used to represent any isolate or subisolate, when arrangement on the basis of a

characteristic is not more helpful than alphabetical arrangement by their names. (Prol, S251).

775 CANON OF SCHEDULED MNEMONICS. - The canon that a scheme of classification should include a preliminary set of schedules of isolates likely to occur in an array of some order or other of all or several classes, or that it should refer any recurrent sets of isolates to the one schedule of them given in connection with an appropriate basic class. (Prol, S261).

776 CANON OF SEMINAL MNEMONICS. - The canon that a scheme of classification should use one and the same digit to represent seminally equivalent concepts in whatever array of whatever facet of whatever class they may appear. (Prol, S271).

78 Canons for Book Classification

781 CANON OF CLASSICS. - The canon that a scheme of classification should have a device to bring together all the editions, translations, and adaptations of a classic, and next to them all the editions etc, of the different commentaries of it, those of a particular commentary coming together, and next to each commentary all the editions etc, of the commentaries on itself (commentaries of the second on the original classic) in a similar manner, and soon with the commentaries of further removes. (Prol, S621).

782 CANON OF LOCAL VARIATION. - The canon that a scheme of classification should provide for alternative sequences of classes to meet special local interests. (Prol, S631).

783 CANON OF BOOK NUMBER. - The canon that a scheme of book classification should be provided with a scheme of book numbers to individualise the documents having the same class of knowledge as their ultimate class. (Prol, S662).

784 CANON OF COLLECTION NUMBER. - The canon that a scheme of book classification may be provided with a schedule of collection numbers to individualise the various collections of special documents to be formed on the basis of the peculiarities of their gross bodies, or their rarity, or service exigency to facilitate use by readers. (Prol, S678).

785 CANON OF DISTINCTIVENESS. - The canon that in a scheme of library classification the class number, the book number, and the collection number, together forming the call number should be written quite distinct or apart from one another. (Prol, S6852).

8 PRINCIPLES

81 General Principles

811 PRINCIPLE OF INCREASING CONCRETENESS. - The principle that, if two classes or two isolates are such that one can be said to be more abstract and less concrete than the other, the former should precede the other. (Prol, S3581).

Implications: -
Methodology precedes application.
Theoretical account of a subject precedes local description of it.

812 PRINCIPLE OF INCREASING ARTIFICIALITY. - The principle that, if two classes or isolates are such that one can be said to be nearer to the "thing-in-itself" or naturalness and farther from artificiality than the other, the former should precede the other. (Prol, S3582).

Illustration: -
See Prol, S 7164.

82 Principle for Facet Formula

821 PRINCIPLE OF INVERSION. - The principle that the facets in the basic formula of a basic class should be in the decreasing sequence of their concreteness in each of th rounds. (Prol, S 3582. Abgila, 2, 1952, B219).

83 Principles for Helpfulness in Array

31 PRINCIPLE OF INCREASING QUANTITY. - The principle that if the characteric used as the basis of classification admits of quantitative measurement, the sequence of the classes or isolates, as the case may be, may be in the ascending sequence of the measure in which the characteristic is shared by the classes or the isolates. (Prol, S1431).

Example:-

The isolates in geometry based on the dimension of the space studied as the characteristic may be arranged as Line or one-dimensional space, Plane or two-dimensional space, Solid or three-dimensional space, four-dimensional space etc.

32 PRINCIPLE OF LATER-IN-TIME. - The principle that, if the classes or the isolates in an array have originated in different times, they may be arranged in a parallel time-sequence. (Prol, S1432).

Example:-

A helpful sequence for the religions is Vedic religion, Post-Vedic Hinduism, Jainism, Buddhism, Judaism, Christianity, Islam.

33 PRINCIPLE OF LATER-IN-EVOLUTION. - The principle that, if the classes or the isolates in an array belong to different stages of evolution, they may be arranged parallel to the course of evolution. (Prol, S1453).

Example:-

A helpful sequence for the natural groups of animals in zoology is to begin with protozoa and end with mammalia.

34 PRINCIPLE OF SPATIAL CONTIGUITY. - The principle that if the classes or the isolates in an array occur contiguously in space, they may be arranged in a parallel spatial sequence. (Prol, S1434).

Example:-

According to this principle, a helpful sequence of the regional organs of the human body is: Lower Extremities, Abdomen, Thorax, Upper Extremities, Neck, and Head.

835 PRINCIPLE OF INCREASING COMPLEXITY. - The principle that, if the classes or the isolates in an array show different degrees of complexity, it is helpful to arrange them in the sequence of the increasing measure of their complexity. (Prol, S1435).

Example:-

A helpful sequence of plane curves is: Straight lines, Conics, Cubics, Quadrics, etc.

836 PRINCIPLE OF CANONICAL SEQUENCE. - The principle that, if none of the five principles stated in sections 831 to 835 are applicable, but the classes or the isolates in an array are traditionally mentioned in a specific sequence, it is helpful to conform to that sequence. (Prol, S1436).

Example:-

Sound, Heat, Radiation, Electricity, and Magnetism form a canonical sequence.

837 PRINCIPLE OF FAVORED CATEGORY. - The principle that, if none of the six principles stated in sections 831 to 836 are applicable, the classes or the isolates in an array may be arranged in the decreasing sequence of literary warrant — ie the quantity of documents published or reasonably anticipated to be published on them. (Prol, S1437).

Example:-

Ancient classics are usually arranged by this principle.

838 PRINCIPLE OF ALPHABETICAL SEQUENCE. - The principle that, if no other sequence of the classes or the isolates in an array is more helpful and if the classes or the isolates have names internationally current, they may be arranged alphabetically by those names. (Prol, S 1438).

91 ABSTRACT CLASSIFICATION

911 ABSTRACT CLASSIFICATION. - Discipline of setting up a variety of models of classification schemes of the universe of knowledge, unmindful of that universe having put forth or not modes of development or structure answering to each such model and

unmindful also of the existence or not of literary warrant for utilising such models. (Prol, S861).

92 SYMBOLISATION

921 OBJECT-LANGUAGE. - Language studied, described or developed. (Prol, S87).

922 META-LANGUAGE. - Language used as a medium of exposition in the study, description, and development of an object-language. (Prol, S87).

Example:-

1 In a book of Sanskrit linguistics explained for English speaking people with the aid of the English language as the medium of exposition, Sanskrit is the object-language and English is the meta-language.

2 In this glossary the focus is on the ordinal language of class numbers as the object-language; and the meta-language is English.

3 In an English jargon used by a particular profession or trade is expounded with the aid of the normal English language, the jargon is the object-language and the normal English language is the meta-language.

923 SYMBOLIC META-LANGUAGE. - A meta-language made of defined symbols. (Prol, S876).

924 SYMBOLIC META-LANGUAGE FOR CLASSIFICATION. - Symbolic meta-language for the study, description, and development of the ordinal language of class numbers. (Prol, S876).

Examples are given in Optional facets (9) by S.R. Ranganathan in Annals part of Abgila 2, 1952, 173-200.

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LASSIFICATION OF ENVIRONMENTED ENTITY

EPTH CLASSIFICATION, 30

S. R. RANGANATHAN

ill now classification schemes have been confining them-
elves largely to entities in normal environmental condi-
ions. But literary warrant has begun to grow in respect of
ntities habitually in or being brought into abnormal environ-
nental conditions. Efficiency in pin-pointed documentation
ervice and depth classification calls for abnormally environ-
nented entities to constitute isolates to be provided with dis-
inctive isolate numbers. Experiments were made in meeting
his problem by Phase Device and Facet Device. These did
ot give helpful results. The fact that an Environmented
ntity is a (W) and not a ($\overline{W}$) led to the final solution that it
hould be accommodated in zone 4 of Array of Order 1 in
1P1]. To prevent formation of homonyms, Subject Device
ad to be differentiated from Environment Device by the in-
ertion of "0" (Zero) immediately after the starter bracket.
his device opens up a vast vista for investigation which will
elp enrichment of all analytico-synthetic schemes such as
C and UDC. The construction of a comprehensive schedule
numbers by Environment Device should be taken on hand
r the natural sciences and social sciences.

0 CASES FOR STUDY

Micro documents of the kind where the Canons of Expressiveness and of Helpfulness call for representation, in the class numbers, of the special environmental conditions in which an Entity is studied, have begun to emerge. Samples of such micro documents are given below:

1 JENNINGS (L.D.) etc. Heat capacity of Terbium from 15 to 350°K. J chem Phys 27, 1957, 909-13.
Lambda anomaly with peak at 227.7°K and an additional anomalous region near 320°K.

Note: Terbium 227.7°K to 320°K is the environmented entity. The focus for environmental device is 227.7°K to 320°K.

2 RAYNE (J.A.). Heat capacity of alpha brasses below 4.2°K. Phys Rev 108, 1957, 22-25.

Note: Individualisation of alpha brass is to be done in zone 2, but it must be amplified by environment device to denote 4.2°K.

3 YASYDA (I.) and YOKOYAMA (N.). Research on the planting in spring of bulbs normally planted in the autumn. Sci rep, Fac Agric Okayama Univ 1957, N 10, 51-66. Tulip bulb and daffodil reacted unfavourably. There was a difference of 30 days in the time of flowering.

Note: Here bulbs normally planted in autumn is the environmented entity. The focus for environment device is Autumn; or is it the intra-faceted Autumn-Spring?

4 COTTLE (W.H.) and CARLSON (L.D.). Regulation of heat production in cold-

adapted rats. Proc Soc Exp Biol Med 92, 1956, 845-49.
Only cold-adapted rats could increase heat-production sufficiently to maintain body-temperature as the test chamber was cooled.

Note: Cold-adapted rat is the environmented entity. Cold is the focus to be used for the environment device.

5 HORTON (D.) and WOHL (R.R.). Mass communication and parasocial interaction. Psychiatry 19, 1956, 215-29.
Relationship between spectator and performer, seemingly face to face, in mass media is designated as a parasocial environment.

Note: Para-social group is the environmented entity. Para-social is the focus to be used for the environment device.

They are still few and far between. A volume of each of three abstracting periodicals had to be scanned through many entries before the above-mentioned five documents could be spot out. However, there is every indication that literary warrant is tending to increase to an appreciable extent. The co-extensive and expressive classification of these documents has not been attempted in this paper as the necessary investigation has not yet been made to enable the establishment of the schedule for Environment Device. The purpose of this paper is only to lay bare the existence of the problems of Environmented Entities, and to do some loud thinking in facing the problems and to call for research in this area.

1 INTRODUCTION

11 Ecology

No entity can escape reaction to and of environment. The total reaction to the whole environment has been studied for long in the case of living organisms. The field of this study is denoted by the term "Ecology". This term covers the technique as well as the results of study. Every scheme of classification has provided a place for it. The following table illustrates it:

Ecology in	CC	BC	UDC
Biology	G:5	EL	577.4
Botany	I:5	FF	581.5
Zoology	K:5	GG	591.5
Medicine	L:5	HI	614
Sociology	Y:95	KTA	30:577.4

In CC, the distinctive digit in the isolate number is 5. The whole isolate number may be 5, or 95, or 995 etc. according to the context of the host Basic Class.

12 Technique of Ecological Study

In the physical sciences, study is usually confined to the "ecology" of an entity in relation to one element in the environment, at time. For example, we have the study of co duction, convection, contraction, elongation, chemical action, etc. These isolates often lay emphasis on methodology and techniques in the pure sciences of physics and chemistr Of late, a considerable literary warrant is getting created in regard to the technique of creating and maintaining abnormal conditions in physical environment and studying entities in such environment. For example, we have

Physics	CC	BC	UDC
High pressure	C9B78	BGE	539.893
Low temperature	C9D1	BHN	536.48
High potential	C9F8		530.19

In CC, subjects like these are called "Specials". The array of isolates of Specials is usually telescoped into the array of isolates of [1P1] i.e. First Round, First Level Personality. The Specials are accommodated in the penultimate octave of zone 3 of that array.

13 Application and its Results

It is helpful to accommodate the application of the techniques to a particular entity or class of entities and the results thereof, in the class to which the entity belongs. Normally, the literary warrant of the past was mostly confined to the application of the techniques to the study of an entity lying within an environment of normal kind- such as normal temperature and pressure (NTP) in physics, normal field factors in psychology, normal social factors in education, familiar political conditions, normal social pattern among or within social groups, and so on. There is also some literary warrant in regard to the techniques and their applications to the study of an entity normally living within an environment of an abnormal kind, such as deep-sea animals, sherpas acclimatised to Everest conditions, and social groups living in a state of prolonged tension.

14 Normally Abnormal Environment

Some provision has been made in most schemes for giving a distinctive place for documents dealing with entities whose normal environment is abnormal as viewed from the angle of the environment to which mankind is generally accustomed.

141 Biological Sciences

Literary warrant in biology, botany and zoology has already led to such a position.

Isolate Term	CC	BC	UDC
Ecological groups (illustrative)	G95	EMJ	577.47
Land organisms	G951		577.476
Subterranean	G9511		577.476(24)
Desert	G9512	EMN	577.476(252.33)
Hydrobiology	G955	EMP	577.472
Marine biology	G9555	EMT	577.472(26)
Atmospheric organism	G958		577.471

142 Sociology

Literary warrant in sociology has already led to such a provision.

143 Methodology in CC

The methodology used in **CC** is that of quasi-isolates. Quasi-isolate is a characteristic other than the favoured first characteristic for division, which is used to arrive at regular isolates. In the biological sciences, quasi-isolates are accommodated in the second octave of zone 2. Thus we have "G95 Ecological groups". In sociology, quasi-isolates are accommodated in the first octave of zone 2. Thus we have "Y3 Groups by residence".

Isolate Term	CC	BC	UDC
By residence	Y3	KCI to KCL	301.185.2
Rural	Y31	KCK	301.185.2(-202)
City	Y35	KCI	301.185.2(-201)
Refugee	Y394	QYV	301-058.53

15 Emergence of New Concepts

Of late, literary warrant has begun to emerge in the study of an entity placed in an environment abnormal ot it. The object of this study is to invite attention to the classificatory problem arising out of this new lietrary warrant. As usual, this problem did not take a recognisable shape in the early stages. Therefore, such newly emerging documents had been placed provisionally either with ecological groups as shown in 141 and 142 or in general ecological studies pertaining to the Main Class of the entities. In doing this, there has always been a slight sense of uneasiness for the classifier and unhelpfulness for the reader. The time has come to study the problem objectively and to find out methods of separating the two classes of literature. It is only by their separation that the efficiency of pin-pointed documentation service and of the depth classification needed for it can be increased. This separation is precipitated by defining "Environmented Entity" as a new concept in the theory of classification.

2 ENVIRONMENTED ENTITY

21 Case Study

The approach to this problem begins with the assumption that the attributes of an entity may vary with its environment. Its behaviour too varies with it. For example, the physical state of any piece of matter varies with the temperature and pressure amidst which it exists. Pressure and other factors being normal, oxygen is in a gaseous state at normal temperature; it is a liquid at 119°C; and it is a solid at 219°C. So also, iron is a solid at normal temperature; it is a liquid at 1535°C; and it is in a gaseous state at 3000°C. The phenomenon of "superfluidity" and other "odd behaviour" of a substance in near-absolute zero in temperature has been brought to notice by Low Temperature Physics. So also, the disintegration phenomenon at solar and super-solar temperature is now being studied. The behaviour of the body of a living organism depends on the pressure at which it exists. A deep-sea animal, accustomed to the high pressure of its normal environment, is ill at ease when brought to the surface; its body may even burst by its internal pressure not being counteracted by the external pressure. On the contrary it needs considerable training and safeguard for a person to work as a forg-man. The abnormality in the functioning of the bodily organs and of the mind as one climbs up to Mount Everest are traced to the abnormality in several environmental factors such as temperature, pressure and oxygen-content of the atmosphere. "Fish out of water" and "Drowning man" are popular phrases used to indicate behaviour in severely unfamiliar environment. "Aviation medicine" in essence connotes the attributes and the behaviour of the human body in the environment characterised by abnormal speed of translation, and frequency of spinning, and bumping. The system of psychology known as "Field psychology" seeks to explain mental attributes in terms of the factors of the total environment. Rousseau's Emile is a study of education in a theoretically conceived environment. Indeed, "Nature vs Environment" is an inexhaustible theme for study. Apart from physical entities, living organisms and persons, even in the case of a social group, attributes and behaviour vary not only with the physical and the biological character of its environment, but also with its psychological and sociological character. Indeed, we speak of "forest civilisation", "river valley civilisation", "desert civilisation".

22 Statement of the Problem

For brevity, an entity whose attributes and behaviour are studied while within an abnormal environment, which is not normal to it, shall be called "Environmented Entity". The problem is:

1 to find a helpful place for an "Environmented Entity" belonging to any host class; and

2 to provide an isolate number for the "Environmented Entity" which will implement the decision about its place.

3 IDEA PLANE

Finding a helpful place for an environmented entity calls for work in the idea plane. In this work, the concept of (W) (Whole) and ($\overline{W}$) (not Whole) will be of use.

31 Whole Entity

(W) denotes any entity taken as a whole in the universe to be classified. In classifying the universe on the basis of a relevant characteristic, we arrive at a set of subclasses. Let us call each such subclass a Subclass of Order 1. In classifying a Subclass of Order 1 on the basis of another relevant characteristics, we get a set of Subclasses of Order 2. By repeating this sufficiently often, a stage will be reached when no further subdivision yielding subclasses of Whole entities will be possible. divided successively on the basis of a chain of characteristics such as user, size, and brand. At the end of such a chain, the cycles in a subclass will be all alike and no further classification will be possible. We regard the cycle as a whole as a manifestation of the fundamental category Personality.

32 Organ of Entity

Further subdivision will only give subclasses made of organs of different kinds of the typical entity of the subclass being subdivided. These organs are, obviously, ($\overline{W}$). It goes into the make-up of the distinctive personality of the entity. Generally speaking, the organs of one type of entity differ from those of any other type of entity. For example, a Hind Cycle will have its wheels, free-wheel, frame, gear, etc. as its organs. By repeating this classification into organs, suborgans etc. sufficiently often, a stage will be reached when further subdivision yielding subclasses of organ will not be possible. For example, the subclass of spokes of the wheels of cycles cannot be further subdivided, on the basis of organs. Each of the organs may itself be regarded as a manifestation of the fundamental category Personality. The whole entity is said to be [P1] or a personality of level 1. An organ of the first remove is a [P2] or a personality of level 2, and so on.

33 Constituent of Entity

Further subdivision will only give subclasses made of materials of different kinds out of which the entity as a whole or any organ of it is built up. For example, the spokes may be made of steel and some other materials. Steel is not an organ of the spokes. It is only a material constituent of them. We regard materials in such a context as a manifestation of the fundamental category Matter.

34 Arrays and Facets

In the idea plane, we regard the subclasses formed of materials to constitute a [M] or Matter Facet. The subclasses formed of the Matter of first remove are said to constitute a [P2] or Personality Facet of Level 2. The subclasses formed of the organs of second remove are said to constitute a [P3] or Personality Facet of Level 3. And so on. The subclass formed of wholes are said to constitute a [P1] or Personality Facet of Level 1. In this facet, the subclasses of first remove from the original i.e. total universe of the entities, are said to constitute the Array of Order 1. The subclasses of first remove from an isolate in the Array of Order 1 are said to constitute an Array of Order 2. And so on. Thus any isolate, which is a (W) belongs to [P1]. It may occur as an isolate in the Array of Order 1, or in an Array of Order 2, or in an Array of Order 3, and so on.

35 Status of Environmented Entity

The status of an isolate comprehending Environmented Entities with one and the same kind of environment is determined by the fact that it consists of Wholes. This means that it is an isolate in P1 . Even there, it belongs to Array of Order 1.

36 What Zone in the Array?

The next issue to be decided is "To what zone of the array should an environmented isolate be assigned?" Even before zone analysis was made for the first time, the sheer pressure of literary warrant had led to a certain practice, which more or less conforms to the theory now being developed. This is discussed in detail in Ranganathan's *Depth Classification. 17. Efficiency table* (An lib sc, 1, 1954, 8) and in Ranganathan's *Prolegomena to library classification*, ed 2, 1957, sec 362-368. The conclusion was summarised in 1957 in Report 7 to FID/CA. The following version of it will be of help in dealing with environmented entities.

Zone	Octave	Sector	Nature of the Isolates Accommodated
1		1	Common isolates
2	1	2	Special isolates by enumeration on the basis of preferred first characteristic
2	2	3	Special quasi-isolates, i.e. characteristics themselves by enumeration
2	Penultimate	4	Specials by enumeration
3	Last	5	Systems by alphabetical device
4			Common isolates by subject device

37 Agriculture and Medicine

Literary warrant calling for environmented isolates has developed in recent years in some main classes, such as Agriculture and Medicine. Before the theory in this paper was developed, there was no guiding principle to accommodate this class of literature. They were therefore accommodated in sector 4. But the presentation of Specials and Environmented Entities in one and the same sector has been somewhat irritating. In spite of the irritation, failure in the notational plane perpetuated such a presentation. The failure in notation made difficult progress of work in the idea plane also. For example, the definition of the term "Specials" was not sufficiently sharp. The isolation of "Environmented Entity" as a distinct concept was itself delayed. Now that the isolation has been made in the idea plane, the notational plane has been obliged to implement it. This pressure of the idea plane has made the notational plane yield a helpful result.

4 NOTATIONAL PLANE

41 Zone 4

The pressure of literary warrant in regard to the isolates accommodated in sectors 1 to 5 is sufficiently great to deter us from disturbing the use to which they have been put. This leads to the consideration of zone 4 as a possible region for the settlement of Environmented Entities. There is a certain appropriateness in doing so. For, the factors of environment by which an entity is environmented can be many in number. Therefore, it may be helpful to denote that factor in the verbal plane and to represent it in the notational plane by Subject Device. This factor also will favour the placing of Environmented Entities in zone 4.

42 Environment Device

The use of packeted notation for Environmented Entity as well as for division by Subject Device *qua* Subject Device may theoretically land one in homonym - a serious fault to be avoided in classificatory knowledge. But, it looks as if this conflict may not arise in practice. However, by way of abundant caution, it is proposed to signify that a packeted number is number for environmentedness by inserting a O (zero) immediately after the starter bracket. The use of a packeted number with O (zero) as the first digit after the starter bracket will be called Environmented Device.

43 Exercise of Freedom

We need not always use Subject Device for indicating environmentedness in all cases.

We can adopt the Favoured Category Principle and enumerate the cases with considerable literary warrant. This will lead to over-all economy in notation. But we should insert a 0 (zero) as an indicator digit immediately after the starter bracket, as the digits a, b, c...x, y, z can occur as the first digit in a packeted number using Subject Device qua Subject Device.

44 Examples

Isolate Term	CC Old		CC Proposed	BC	UDC
Dry farming	J9D		J(od)	UADR	631.586
Soilless farming	J9S		J(os)	UAVR	631.587.2
Polar medicine	L9J		L(op)	HPVP	616(98/99)
Tropical medicine	L9H		L(ot)	HPZ	616(213)
Aviation medicine	L9T		L(oD53)	HPVM	613.693
		or	L(oa)		
War medicine	L9V		L(oMV4)		613.693
		or	L(ow)		
Industrial medicine	L9X		L(oM)	HPVC	613.6
Industrial medicine (textiles)	L9X9M7		L(oM7)		613.6:677
Industrial medicine (wool textiles)	L9X9M72		L(oM72)		613.6:677.3
Industrial medicine (brick-laying)	L9X9MD13		L(oMD13)		613.6:693.2

45 Enumeration vs Device

Alternative CC numbers are shown against Aviation Medicine and War Medicine, just to point out the procedure to be followed in the case of a new subject of the nature under consideration. Until a short isolate number is given in an enumerated schedule, a classifier can construct his own number by Subject Device. The number got by enumeration will be shorter than the one got by Subject Device. But it will take away the autonomy of the classifier. For this reason, the over-all authority in charge of the development and the maintenance of a scheme of classification should provide an enumerated schedule only in cases which have accumulated much of literary warrant. This is of course to be the general attitude in all cases involving the issue Enumeration vs Device.

46 Sector 6

Zero occupies the first place in the ordinal sequence of digits used in the notational system of CC. Therefore a packeted number used in Environment Device will have precedence over any other packeted number. Therefore, normally the sector of an Array, got by Environment Device, will be sector 6.

47 Follow-up Work

The old CC numbers given in the table in section 44, are to be discarded, as it is now possible to distinguish a special from an Environmented Entity. It is necessary to scan all the existing schedules of Specials from this angle and transfer every Environmented Entity included in them from the sector 4, i.e. the Penultimate Octave of zone 2, to sector 6, i.e. the first octave of zone 4.

5 ADDITION OF A NEW DIMENSION

The decision arrived at in the idea plane and the method prescribed for implementing it in the notational plane are expected to give a more helpful sequence than hitherto-fore. The use of the Subject Device in the construction of number by Environment Device gives great Hospitality in Array. In fact, a new dimension has been added. This will enable us to carry depth classification to a deeper level and to provide co-extensive numbers in an ever-expanding group of subjects. The clarification of the difference between "Specials" and "Environmented Entities" is another incidental advantage.

6 FIRST APPROXIMATION

In the first attempt to meet this problem, the help of Phase Relation and Phased Class Number was sought. The phase relation was taken to be that of Influence. For example,

Industrial medicine	L0gM
Aviation medicine	L0gD53
Tropical medicine	L0gU.192

But it has been felt all along that the effect of environment is more intimate than the loose or vague implication involved in Phase Relation. It is this feeling- particularly keeping that feeling alive without suppression - that has led utlimately to the concept of Environmented Entities and Environment Device.

7 SECOND APPROXIMATION

The second attempt to meet the problem was to make the environment a Facet. It was difficult to decide the fundamental category of which it can be taken to be a manifestation. That it was not Time, Space, or Energy was obvious. Of the remaining two fundamental categories, Personality was ruled out, because environment is not an organ of the entity environmented. It was finally decided to take environment to be a manifestation of Matter. But it was not happy. This was the feeling in the idea plane. The notational plane came to help at this stage. It gave a warning against taking away any of the sectors or zones in the Matter Array of Order other than the first, for any use other than the enumeration of Isolates of Matter qua Matter. It has been stated in section 2 of my Report 7 to FID/CA of 1957, which was on the Classification of commodities and services, that the number of isolates to be accommodated in the Matter Array of Order 1 is unusually large. It is too large to be managed even by Group Notation with a restricted base. It was estimated in section 23 of that Report that, by using all the sectors from the second onwards- those belonging to zones 2 to 4- the number of isolate numbers available was of the order of 10^{o}. All these places have to be reserved for enumeration of Commodities and Services.

8 FINAL SOLUTION

The resistance - vague from the idea plane and definite from the notational plane - led to a more careful examination of the status of an Environmented Entity. As showin in section 3, the concept of (W) and ($\overline{W}$), was applied. This showed that an Environmented Entity is a (W) and should therefore be accommodated by improvising a New Array if need be, but not by a New Facet. Having decided this, it came to mind that the Array of Order 1 in [1P1] - that is the First Round, First Level Personality Facet - was already a Telescoped Array and that the Array of Environmental Entities should be telescoped along with the Arrays of Systems, of Specials, and of the normal Array of Enumerated Isolates of [1P1].

81 Favoured Environment

No entity can at any moment be un-environmented. This implies that the isolate number for every entity should have a part got by Environment Device. But this can be made unnecessary by a convention in the case of the environment which has or likely to have the largest literary warrant in any given context. The convention is to omit in the isolate number the part pertaining to environment in such a case. There is a precedence for it. In S. Parthasarathy's paper "Diffuse treatment of systems and specials" (Optional facets 16 in the Annals part of Abgila 3, 1953, 7-10), it has been decided to omit the digit (s) for indicating Systems in the case of the Favoured System. The System with the largest literary warrant is called the Favoured System. The class number of the exposition of a Basic Class according to the Favoured System, is not loaded with System Number. This has been explained in Ranganathan's Prolegomena to library classification, ed 2, 1957, Sec 36711. Similarly we can speak of Favoured Environment and omit the part pertaining to environment in theisolate number of a Favoured-Environmented Entity. Thus there will not be need to apply the Environment Device in the majority of Documents, particularly in books.

82 Work to be Done

"Environmented Entity" is a helpful concept. It is necessary in depth classification. The Environment Device described in this report will give helpful results in documentation work and documentation service. This device opens up a vast vista for investigation. The Environments Numbers used in the examples in this report are only tentative ones improvised for making the exposition a little concrete. They should not be taken as a final. A comprehensive schedule of Environment Numbers should be constructed for use in various contexts. This is a basic work to be done in the immediate future. Perhaps, the construction of the schedule of Environment Numbers will be facilitated if the schedule for the Posteriorising Matter Common Isolates is constructed earlier. The Indian National Committee for Cooperation with FID/CA is now engaged in constructing the latter schedule. Once this is done, the Environment Device can be adapted to any scheme of classification. This will be particularly easy in the case of analytico-synthetic schemes, such as Colon Classification and Universal Decimal Classification. This will be of help in sharpening the depth classification of subjects not only in the Natural Sciences but also in the Social Sciences. We should also investigate the problem in the Verbal Plane in establishing class Headings by Chain Procedure, arising out of Environment Device.

A GRAMMAR OF DEPTH CLASSIFICATION

S. PARTHASARATHY

Reviews the results embodied in the second edition of Ranganathan's Prolegomena to library classification. Indicates their impact on the recent developments in classificatory thought at international level. Discusses some of the major contributions such as separation of planes of work in classification, potency of notation and work to be done in the notational plane, importance of standard terminology in the schedules of classification, zone and sector formation, postulation of five fundamental categories, facet analysis and phase analysis, canons of classification, and postulational approach to classification. Mentions the importance of the work in progress in the building up of schedules for the Posteriorising Common Isolates especially for Materials and Services.

0 INTRODUCTION

This paper is occasioned by the release of the second edition of the Prolegomena to library classification * . In the words of the publishers the "original edition of this work, published twenty years ago, was an outstanding contribution to library classification and has had considerable influence on library thought and practice". Since 1937, the year of publication of the first edition, quite a large number of basic concepts and results have been evolved and are being exploited continuously by Dr Ranganathan and his co-workers in India. These results are scattered in several articles. They are all collected together and strung into a consistent whole in the present edition. It also contains some new results in classificatory techniques not published elsewhere.

01 List of Unsolved Problems

As is usual with Dr Ranganathan's books, the second edition concludes with a chapter enumerating 44 problems awaiting to be solved. These are featured as 16 problems in the idea plane, 11 problems in the notational plane, 7 problems in the construction of schedules, 3 problems as insoluble, and 7 problems in Abstract Classification. The number of unsolved problems enumerated at the time of the first edition was only eight. It has now swollen to 44. This cascade phenomenon is a characteristics of research in any discipline. The deeper one goes into a subject and the more thorough the understanding becomes, the greater becomes the problems to be solved. This is borne out by the spiral of scientific method.

02 Impact on the World

The results embodied in the second edition of the Prolegomena have made a profound impact on the classificatory world. This is evidenced by the International Study Conference on Classification for Information Retrieval held at Dorking in England during 13-17 May 1957. In

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*RANGANATHAN (S.R.). *Prolegomena to library classification.* Edn 2. Library Association, London. 45 sh.

the words of its organisers "the object of the Conference was the study of modern ideas on classification (which are largely due to Ranganathan of India) and their application to information retrieval". Consistently with this, Dr Ranganathan was invited to deliver the opening address. His subject was "Classification as a discipline". The focal points of this address are

1 postulate-basis for classification; and
2 the establishment of model schemes of Abstract Classification. These are more fully dealt with in the Prolegomena (List 4, sec 855 and chapter 86). For the first time a criterion is set up to deem a scheme of classification to be new. A scheme of classification "is new only if its system of postulates differs substantially from those of the existing schemes" (sec 838). Most of the conclusions and recommendations of the Dorking Conference stemmed from the issues raised in Dr Ranganathan's opening address. It is expected that some of these will be pursued further in the International Conference on Scientific Information to be held in Washington in November 1958.

03 British Co-operation

Since the end of the Second World War, there has been active and helpful cooperation between India and Great Britain in the pursuit of the theory and the design of classification. The Library Research Circle of India, is devoting much attention to the General Theory of Classification. The Classification Research Group of London is applying Facet Analysis to several subjects. This international co-operation is helping forward the growth of the seedling which sprouted in India about thirty years ago. Classification is a pure discipline. It is also a fundamental one. There can be no narrow national boundary to insulate it. A measure of this trans-national approach is the publication by the British Library Association of the second edition of the Prolegomena which was first published by the Madras Library Association.

04 Scope

The chief contributions of the Prolegomena concern

1 the distinction of the planes of work in classification-research;
2 the nature and the potency of notation and the work to be done in the notational plane;
3 the standardisation and simplification of terminology in the verbal plane and the work to be done in collaboration by classification-specialists and nomenclature specialists;
4 the zone and sector formation, the facetisation and the phase formation in the idea plane, the removal of rigidity in the construction of schedules of classification; and the pushing of enumeration down to as near the primordial level as possible;
5 the correlation of the work in the idea plane and the notational plane;
6 the application of canons of classification in the construction of schedules; and
7 the use of postulates as a basis for the development of a scheme of classification.

1 PLANES IN CLASSIFICATION WORK

There has been much confusion in classificatory thought, research and exposition till a few years ago. This has been due to the mixing up of work in the idea plane, verbal plane and notational plane. The removal of this confusion is a fundamental contribution of the Library Research Circle of India. It removed it by the recognition and the ruthless separation of work in the Idea Plane, Verbal Plane and Notational Plane. It is the involuntary and unconscious jump from one plane to another in one and the same breath as it were, which had been obstructing progress.

11 At the Subconscious Level

As one who had been working in intimate relation with Dr Ranganathan during the last 18 years, I could now very well account for the unusual clarity in his exposition I had experienced in discussions with him in private, in research circle, and in class-room. It is this separation of work in the three planes. Evidently this separation has been happening in his subconscious mind all along, though it was stated consciously only in one of the meetings of the Library Research Circle in 1952.

12 Reflex Action

The announcement of this separation appeared to his co-workers to shed light on our path and give us relief. This concept soon became part of reflex action. It made our discussion brief, precise and fruitful. Chapter 33 of the Prolegomena expounds the three planes of classification of work.

2 NOTATIONAL PLANE

21 Pure vs Mixed

211 Eastern Schemes

DC, the premier classification of our days, has a pure notation. It uses only one species of conventional symbols viz Indo-Arabic numerals. Its base is therefore short. EC, LC and SC use a mixed notation of two bases viz Indo-Arabic numerals and Roman capitals. But they did not exploit fully the hospitality arising out of placing the two bases in a single array. This failure in the notational plane disabled them from implementing with facility the findings in the idea plane in respect of a long array of isolates. It also led them to mix up forcedly in one and the same array as viewed from the notational plane isolates belonging to different arrays as viewed from the idea plane. This is different from the conscious Telescoping of Arrays, in certain stated circumstances, prescribed in CC. Recurrence of such forced mixing up appears to have even blurred the recognition of difference in arrays in the idea plane.

212 UDC

UDC introduces mixed notation of another kind. It retains the pure base of DC but it used a distinctive set of symbols - mostly punctuation marks - as Connecting Symbols to tie up different facets in a class number.

213 CC

CC also does the same. But its Connecting Symbols are simpler and are invested with a greater significance as indicators of the nature of the isolates following them. It also uses four species of symbols in addition to the connecting symbols. It uses all of them in a single array. This increases the Hospitality in Array to an enormous degree. The use of packeted notation contributes to this.

214 Value of Mixed Notation

The Prolegomena discusses the advantages of mixed notation in notational organisation (sec 3612), the Telescoping of Facets representing Systems, Specials, etc (sec 3675) and the implementing in the notational plane of the results of Zone Analysis in the Idea Plane (sec 362).

22 Advantages of Connecting Symbols

221 DC

DC has a monolithic notation; that is, the substantive digits in a class number get packed consecutively. The use of a dot, without any semantic significance, after the first three digits indicates the reaction of the resulting monotony of a monolithic class number.

222 UDC

UDC uses connecting symbols to indicate Space and Time Facets and occasionally a mixture of other kinds of Facets, and Phases. This was a fruitful forward step.

223 CC

In CC the connecting symbols carry even greater meaning. They also function as indicators. They carry the capacity to indicate the nature of the succeeding isolates and thereby add to the versatility of notation. We may call its notation polylithic.

224 Methods of Assessment

The Prolegomena mentions two methods of assessing the relative advantages of monolithic and polylithic notation (sec 6851). They are physiological and psychological.

23 Physiological Assessment

According to the Prolegomena, physiology sets a limit to the number of digits that can be comfortably taken in a single sweep of the eye. Perhaps the same limit will also be set by physiology to facilitate a comfortable use of breath in reading out a class number. The optimum number of digits may be taken to be three and the maximum to be six. On this basis it is good to break up a class number into such groups of digits.

24 Nature of Isolate Ideas

It is conjectured that the optimum number of characteristics needed in a train to individualise an isolate will be three and the maximum will be six. A notation which utilises these factors will be a helpful notation. The mixed notation which uses punctuation marks for separating isolates of different kinds in a class number answers this purpose.

25 Psychological Assessment

Naturally the psychological assessment of the value of such a notation cannot be equally objective. For, habit plays a great part in the psychology of notation. Depth-classification (part 4) has not been in use anywhere till a few decades ago. Even now it has not come into wide use in public library practice. And public librarians form a overwhelming majority in the library profession. They have not yet begun to realise the importance of documentation service as much as the industrial libraries do. The industrial librarians are pressed to serve nascent micro-thought without loss of time. They feel the need for depth-classification for this purpose. They have therefore developed a favourable mental set towards a faceted notation. But they form only a minority in the profession. Their voice is drowned in the noise of the crowd of public librarians. But that should not deter documentalists from marching forward along lines indicated in the Prolegomena. (chapter 58) and exploit in all its fulness the potency of a faceted notation. Thre is no doubt that in due course such a notation will get woven into habit and accepted without any emotional resistance.

26 Economy vs Expressiveness

Another moot point calling for decision in the notational plane is the relative weight to be given to the smallness of the number of digits in a class number and its expressiveness. The Prolegomena is categorical in this respect. "When the two cannot be secured in an equal measure, the basic purpose of classification would make us uphold the latter, because the demand for expressiveness and co-extensiveness is made by the universe of knowledge and belongs to the Idea Plane, while the limit to length of class number is made by the artificial universe of class numbers and belongs to the Notational Plane. A scheme of classification has no option but to accept the proliferation in the universe of knowledge as they are, and fully, and without any modification, as the universe of class numbers is its own creation. But we should always keep in mind the urge of the Law of Parsimony to shorten the notation; indeed the very length of the notation will act as a constant reminder. It will keep alive the apical bud of research in library classification". (sec 585).

27 Research in Notation

From this angle, the notational innovation of E J Coates, being demonstrated in the British Catalogue of Music, is an experiment to be welcomed. I hope to examine the results of his experiment in another paper. It is necessary to have extensive research to find out the full potentialities of notation not only in implementing the requirements of the Idea Plane but also to sharpen the work in the Idea Plane. Most of the work in designing notation has been amateurish. It is time to bring it into the ambit of scientific method. It is necessary to place research in notation on the solid foundation of postulates. Indeed, the postulates for notation themselves need investigation. This is one of the implications of chapter 86 of Prolegomena on "Abstract Classification".

28 Pressure of Universe of Knowledge

In the meantime the following warning in the Prolegomena should be taken seriously.

"To ignore the proliferations in the universe of knowledge calling for distinctive class numbers is like the cat closing its eyes and imagining the absence of any kind of danger. Progress in research in library classification will stop. But the proliferations of the universe of knowldge will not stop. The class number... will soon collect under it a hotch potch of several subjects, defying the Canon of Helpful Sequence and the Canons for Filiatory Sequence. The arrangement of the documents having the same class number will form a pocket. It will be the very negation of classification... The protest against three digits in the DC was no less vehement half a century ago than the protest over more than ten digits today. Protest of this kind is not legitimate in scientific method. Reconciliation and research into the problems should replace protests" (sec 5851).

3 VERBAL PLANE

31 Neglect of Terminology

Verbal plane has been neglected in most of the Western schemes of classification. Even the terminology of classification itself has been rather loose. Even something worse is happening. Except in the case of a handful of progressive librarians, there is even an allergy to the adoption of precise technical terminology in the discipline of classification. It is no wonder then, that the terminology used in the schedules of classification ignore the Canons of Terminology - particularly the Canons of Context and Enumeration (sec 19 and 18).

32 UDC

The worst happens in the schedules of UDC. The terms occurring in its schedules are verbose. It often gives a string of terms against a class number.

33 DC, SC and CC

But the genius of Dewey and Brown has shown, though unconsciously, much respect to the unexpressed canons of terminology mentioned in 31. CC also began with a fairly precise terminology in its first edition. After the enunciation of the canons of terminology in 1937, it has been steadily improving the terms used in its schedules.

34 Influence of Chain Procedure

The discovery of Chain Procedure in India in 1938 is having a salutory effect on the Verbal Plane. The rules of Chain Procedure throw a great responsibility on the terms used in the schedule of classification. They expect the schedules to use single-worded isolate terms for use as subject headings. These have to be carefully coined so as to give helpful multiple subject headings wherever a homonym occurs. When a new discipline gains literary warrant, it is often without a precise name. It has to be denoted by a descriptive phrase. The Chain Procedure stimulates the coining of single-worded terms in such cases - e.g. Museology, Bibliographology, Biographology. This problem is discussed in section 3634 and its subdivisions of Prolegomena.

35 International Nomenclature

The Chain Procedure can have a wholesome effect on the general discipline of nomenclature. Much can be gained if the work of the classificationist in the verbal plane and that of the international congresses on nomenclature are brought into intimate relation. There will be reciprocal benefit. Attention should be paid not only to nomenclature of concrete entities but also to processes, properties, and values.

4 IDEA PLANE

The most fundamental contribution of the Prolegomena is the rationalisation of the work in the Idea Plane.

41 Primordial Categories

One general trend in the thinking of Dr Ranganathan is the probing into great depths for primordial categories which manifest themselves as isolates on the surface. It is this trend that has led him to depth-classification (part 4). This way of his thinking manifested itself very early in his work on classification. This was finalised into the Canon of Seminal Mnemonics (sec 271). He is still not satisfied with what has been done. According to him: "In the mystic tradition of Chaldea and India, many such equivalences are believed to have been recognised....It gives seminal mnemonic significance to letters as well as numerals. A correct knowledge of it ought to make the use of digits conform with seminal mnemonics. The forgotten tradition needs to be recaptured. Class numbers formed with such mnemonic digits will satisfy the Canons of Filiatory Sequence and of Helpful Sequence in an ideal way. The Canon of Consistent Sequence would also be satisfied even at a subtle level" (sec 272).

42 Five Fundamental Categories

There is much more of objectiveness in the postulation of the five Fundamental Categories Time, Space, Energy, Matter and Personality - and basing the analysis of the thought content of a document on the postulate that "every train of characteristics can be assigned to one and only one of these five Fundamental Categories". That this and other related postulates have been a real boon both to the classificationist and the classifier is now a matter of experience with those who have to work with depth-classification for documentation work. Taken along with the Canon of Mnemonics, this approach to depth-classification makes it unnecessaay to have lengthy schedules for each Basic Class or for particular industries. But librarians who practice only in public libraries and are not putting classification to its best use fight shy of the five Fundamental Categories. They take them to be products of metaphysical or mystical approach. But "the use of these terms in the context of classificatory discipline has nothing to do with their use in metaphysics or physics. Their use here merely enables our employing them together in statements about dimensions (or facets) - their separation and their sequence". (sec 3501).

43 Facet Analysis

The value of Facet Analysis even for superficial classification is now acknowledged everywhere. Its elementary application to the classification of books is described in section 235. There is nothing new in this beyond what was described in the first edition (1937) though this term was first used only in the Library classification: Fundamentals and procedure (1942). The present edition has generalised this concept (sec 875). This generalisation comprehends all the new postulates about Levels and Rounds (sec 35061 and 3532) enunciated during recent years. Facetisation of this kind removes rigidity of every sort both in the Idea Plane and in the Notational Plane (sec 3261-3281, 3314-3317). Another new feature in the present edition is the establishment of a facet formula for Book Number also. This was implicit in the Book Number Device given in the first edition of CC. The application of Facet analysis to it has made Book Number more hospitable and helpful.

44 Phase Analysis

The UDC was the first scheme to introduce analysis as a step in classification. But its analysis was rather primitive. For, it did not distinguish between facet relation (which is a relation between isolates and basic class) and phase relation (which is a relation between basic classes with or without facets of their own). The separation of these two types of relations was unconscious in the first edition of CC. It was made conscious and the term "Phase" was introduced only in the Fundamentals (1942). The present edition of the Prolegomena has put this concept on a firm basis (sec 468). Its benefits are expounded in sections 14447, 236, 2636, and 311. This kind of relation has been further extended in the present edition to an analogous relation - Intra-Facet Relation - between the isolates within one and the same facet (sec 4683). This leads to appreciable economy in notation. This is one of the cases where theory has preceded practice. For, Intra-Facet Relation is introduced duced only in the fifth edition of CC which was prepared only two years after the work on the second edition of the Prolegomena was completed.

45 Common Isolates

Traditionally only one class of Common Isolates has been recognised. They have been called by different names such as Form Divisions and Common Subdivisions. These are strictly Anteriorising Common Isolates according to Prolegomena (sec 4582). The schedule of DC consists more or less purely of anteriorising common isolates. But UDC and BC added to this schedule indiscriminately other common isolates which are of a posteriorising nature. Prolegomena has clarified the situation. For this purpose it has given a careful dynamic definition of the term "Common Isolate" (sec 345). With the help of this definition it has isolated six classes of common isolates. One of these is of course of the anteriorising kind. The other five are posteriorising. The posteriorising common isolates correspond to the five fundamental categories. Prolegomena has postulated Levels for Space Common Isolate (sec 3522 and 464) and for Time Common Isolate (sec 463). The Levels for Space and Time Common Isolates have been worked out in detail by Dr Ranganathan in the Review of documentation 23, 1956, 70-82; 24, 1957, 18-28. Energy, Matter and Personality Common Isolates are examined in sections 4551, 4561 and 457 of the Prolegomena.

451 Potency of Common Isolates

In his opening address on "Library classification as a discipline" at the Dorking Conference (1957), Dr Ranganathan has conjectured:

"Many of the difficulties now met with in the classification of the natural sciences and their applications will stand solved if a comprehensive schedule is worked out for properties of materials. This should include mensurational properties such as length, area, volume, and other indications of size and shapes of all possible varieties; physical properties such as weight, density, state of matter, elasticities of diverse kinds, viscosity, capillarity, acoustic, and vibrational properties; thermal properties of various kinds such as conduction, critical points, specific heat, etc; radiational properties including colour, permeability to hard rays; electrical, and magnetic properties of all kinds; isotopic properties, radio-activity, etc.; chemical properties including those of physical chemistry such as solubility, osmotic pressure, etc., stereochemistry, atomic weight, valency, chemical affinity, etc.; and biological properties." This schedule will also include the value isolates arising out of humanities and social sciences. Work is now in progress in the Library Research Circle of India to complete this schedule. These have been called Common Matter Isolates on the analogy of the grouping of properties in Roget's Thesaurus. If we add to these the Common Energy Isolates which may not exceed about a hundred, the work in Depth Classification would be completed to a considerable extent. This is a measure of the potency of the Posteriorising Common Isolates.

46 Special Isolates

The compilation of the schedules for the Posteriorising Common Isolates and of the schedules for Materials and Services (An lib sc 4, 1957, 45) will reduce to the barest minimum the need for schedules for special isolates pertaining to diverse industries. In fact, the proposed fascicules of the second volume of CC for the Depth Classification for the various Basic Classes and industries in particular are being delayed pending the completion of the schedules for Common Isolates and Materials. It is worth to quote here an observation of J. Mills:

"Although the improvements mentioned above show that Colon is still in the front of progress in designing classification systems, it must be a disappointment to those special librarians who, increasingly aware of the efficiency of the Colon method, yet fail to find any significant expansion of those classes most urgently in demand - the natural sciences and their technologies. Even for books these classes are still often inadequate. The reason is, of course, that the resources behind Colon are too slender to afford expert helpers to the degree called for. Here is a worthy object for a minute portion of the millions of pounds spent on scientific and industrial research". L A Record 60, 1958, 154. The progress of work of the Library Research Circle of India on the Posteriorising Common Isolates and the schedules for Materials and Services is being delayed on account of monetary help which alone can spare a few competent full-timed workers to collaborate with Dr Ranganathan in completing this work. Once this is done, the Special Isolates can be scheduled in no time.

47 Zone Analysis

A new contribution of the present edition of the Prolegomena (sec 362-368) is Zone Analysis. Facet Analysis analyses the trains of characteristics of a Basic Class into different categories and postulates a faceted notation at the stage of synthesis. Zone Analysis, on the other hand, is concerned with the isolates falling within a single Array, i.e. the isolates of a Basic Class based upon a single characteristic. It divides the isolates of an Array first into Common and Special. It divides the Common Isolates into enumerated Common Isolates and those got by Subject Device. These two groups are assigned respectively to the first and the fourth or the last zones of the Array. The second and the third zones carry the special isolates. The isolates in the second zone are got by enumeration. The isolates in the third zone are got by Alphabetical and Chronological Devices. This new concept of Zone Analysis has greatly simplified the building of schedules. It must be stated here that Zone Analysis is intrinsic to the Idea Plane. It is wrong to imagine that it belongs to the Notational Plane. Perhaps this wrong notion is traceable to the fact that the notation of the CC implements the results of Zone Analysis for better than that of any other scheme. It is this fact that has increased the versatility of the Colon notation.

48 Efficiency Table

What appears as versatility table in the Notational Plane corresponds to the efficiency table in the Idea Plane. The efficiency table does not require the use of any notation. It merely displays the occupied and the fallow Zones and Sectors in the different Arrays. Already the use of the efficiency table has clarified thought in the design of schedules of classification. The disclosure of fallow cells in the efficiency table has enriched the work of analysis in the Idea Plane. It has brought to surface many isolates which had been overlooked in the Idea Plane and therefore had to be wrongly clubbed together with some other isolates. (sec 3624). This is examined in detail in the An lib sc 3, 1956, 1-8. According to Prolegomena this tool of efficiency table imposes on a classificationist the ever continuing task of examining every array brought into use from time to time and to investigate the possibility of bringing all its zones into use.

5 CORRELATION BETWEEN IDEA AND NOTATIONAL PLANE

There should be close correlation between the idea plane and the notational plane in a scheme of classification. Idea plane is of paramount importance. The notational plane has to implement what has already been determined in the idea plane. The idea plane prescribes a certain helpful sequence. The notational plane has to maintain that sequence. The idea plane recognises interpolation of infinity of classes between any two classes. To implement this, the notational plane should be capable of infinite hospitality in array and chain. Thus, it is the close correlation between idea and notational plane that determine the efficiency of a scheme of classification.

6 CANONS OF CLASSIFICATION

The design of a scheme of classification is largely a work of intuition, though the intellect will have to be requisitioned to polish and round off the scheme produced by intuition. To do the work in the intellectual plane a grammar of classification is necessary. James Duff Brown was perhaps the first to attempt it. W.B. Sayers and H.E. Bliss worked out the grammar in greater detail. The fundamental rules of grammar which they isolated has been called Canons. The canons formulated by Sayers and Bliss were based only on the enumerative schemes of classification which alone were available for their study. Since then the CC has developed an analytico-synthetic classification to a considerable degree. Taking advantage of this, the Prolegomena has made the canons more comprehensive.

61 Nature of the Canons

We find the play of analysis, characteristic of Dr Ranganathan, in full measure even in the development of the canons. The canons in the Prolegomena fall into eight groups. Six of these belong to the general theory of classification and are expounded in detail in chapters 13-18. The second group is made of special canons for knowledge classification. These are expounded in chapters 22-27. The third group is made of special canons for book classification. These are expounded in chapters 62, 63, 66-68.

62 New Canons

The second edition has added for the first time two canons for filiatory sequence and the canon of expressiveness for notation.

63 Filiatory Sequence

The idea of filiatory sequence was fully developed in the first edition both theoretically and by analogies. However, in 1937 this new concept of filiatory sequence was too refractory for the spotting out of the canons they imply. This difficulty has now been overcome. The present edition clinches the essence behind the concept of filiatory sequence in the form of two canons - one for subordinate classes (sec 161) and the other for co-ordinate classes (sec 162). The enunciation of these two canons clarifies the situation considerably and would facilitate teaching work.

64 Canon of Expressiveness

In any discipline it is possible to strike new path by either replacing one of its consistent and independent system of canons by its negative, or by omitting any one of the canons. The canon of expressiveness is the one canon in Ranganathan's system of canons which easily lends itself to such treatment. In fact the work of Coates on non-hierarchical notation amounts to the omission of this canon. Such an omission naturally leads to a fundamentally a different system of notation. In evaluating the merits of the two systems of notation got in this way, one should not overlook the diverse purposes to be served by the scheme of classification and the aid which the notational system should give in satisfying these purposes. The diverse pruposes are:

1 arrangement of documents
2 exploration of the regions of the universe of knowledge needing cultivation
3 helping the classifier in capturing the foci in all the facets of the thought content of the document classified
4 helping the reference librarian in expeditiously finding out the requirements of an enquirer
5 international communication and potentiality as a transformer-language.

7 POSTULATIONAL APPROACH

A set of postulates are enunciated for developing a scheme of classification. The postulational method has been developed in Mathematics for the construction of new tools and models. In this method, certain postulates are assumed and all their implications are worked out. Dr. Ranganathan has applied this method to classification. As a first attempt, 21 postulates are enumerated in the Prolegomena. The postulational method is developed further in his article on "Postulational approach to faceted classification" (An lib sc 5, 1958, 33-51). The postulates are considered from the point of view of Idea Plane and Notational Plane.

71 Idea Plane

The postulates pertaining to the Idea Plane are applicable to any scheme of classification. The following postulates for the Idea Plane are enumerated in the article mentioned above:

1 Personality, Matter, Energy, Space and Time are the fundamental categories.

2 Arranged in the decreasing sequence of their relative concreteness, the five fundamental categories fall in the sequence Personality, Matter, Energy, Space, and Time.

3 Basic classes are those enumerated as such by the scheme of classification.

4 Anteriorising common isolates are those enumerated as such by the scheme of classification.

5 Every subject includes a basic class. It may also include isolates which are manifestations of one or more of the five fundamental categories, and also anteriorising common isolates.

6 A subject may include many rounds of manifestation of the fundamental categories, Energy, Matter, and Personality.

7 Space and Time isolates can normally occur as manifestations of Space qua Space and Time qua Time, only in the last round of a subject.

8 A subject may include many levels of manifestations of the fundamental categories Personality and Matter within any round and manifestations of Space and Time in more than one level in the last round. The levels of Personality within a round occur consecutively. So also with the levels of Matter.

72 Notational Plane

The postulates pertaining to the Notational Plane vary with the scheme of classification. Some of the postulates applicable to an analytico-synthetic scheme of classification are given below:

1 The digits in each of the conventional groups — such as alphabets, numerals, etc — used in a scheme of classification have their conventional ordinal values.

2 The conventional groups used fall in a definite sequence.

3 The ordinal value of each additional symbol brought into use is defined ad hoc.

4 The ordinal value of any connecting symbol is smaller than that of any substantive symbol — ie the digit occurring in a basic number or an isolate number.

5 The ordinal value assigned to connecting symbols for Personality Isolate, Matter Isolate, Energy Isolate, Space Isolate, and Time Isolate is such that it secures the arrangement of subjects according to the Principle of Increasing Concreteness.

6 A Personality Isolate Number, immediately following a Basic Class Number, need not be preceded by its connecting symbol.

7 The digits used for Anteriorising Common Isolates have anteriorising quality.

The postulates for the Colon Classification are enumerated in section 12 of the article mentioned above.

8 PROBLEMS FOR PURSUIT

As mentioned earlier, Prolegomena has isolated the problems to be pursued in the development of depth classification for pin-pointed documentation work. The problems pertain to idea plane, notational plane, construction of schedules, determination of helpful sequence, abstract classification. Prolegomena gives a comprehensive treatment of the basic principles for depth classification developed by Dr Ranganathan. It is a classic in its field. All future work in depth classification has to stem from it.

PRODUCTIVITY DRIVE AND DOCUMENTATION

S. R. RANGANATHAN

Defines productivity and documentation. Shows the part to be played by documentation in the industrial enterprises today. Marks out the area of documentation in the various regions of industrial process — in respect of materials, machinery, and processes; lay-out, flow of work, quality control, and industrial operations; work study, therbligs, and environmental conditions for work, and standardisation and simplification of products, materials, and processes. Refers to the fundamental work done in India, such as facet analysis, zone analysis, and chain procedure, which now form the basis of the research in the techniques of documentation in the international plane and describes the aims and objects of Insdoc, which are essentially to increase productivity. Stresses the need for the National Productivity Council to share its labours with a documentalist along with other interests.

1 INTRODUCTION

11 Factors of Productivity

Productivity is a post-war term coined to underline the essential feature of any economic activity. The essence of economic activity is attainment of maximal efficiency in

1 the transformation of raw material into consumable commodity;

2 the transport of raw material to the place of production and of the commodity the place of consumption; and

3 the rendering of service of any kind needed.

Maximal efficiency means the avoidance of wastage of every kind, be it in men, money, materials, space or time. Productivity means getting the greatest ratio between the in-put and the out-put of all the above elements in industrial enterprise. The sectors of production calling for attention in productivity drive fall into the following three groups:-

1 materials group, consisting of raw materials, plant and machinery, tools and criba, and capital;

2 factor of junction between materials and men, consisting of location, lay-out, materials handling, industrial operations, and such other elements; and

3 human group, consisting of the labour, technicians, managerial personnel, intellectual workers, and persons of various grades of creative ability.

The critical sector determining productivity in an enterprise will be that which is the limiting factor for the time being.

12 Hidden Spring of Productivity

The basic hidden spring of productivity is the very joy of it. In his description of Mahasaraswati in the Mother, Shri Aurobindo states that this joy is sought through the achievement of "Perfect perfection" in whatever is done. But this hidden spring is potent only in a few individuals. This had a good chance to activate itself in the days of small scale production by an individual. He had control and mastery over the whole process of production from the beginning to the end. The final product of his own design and handwork would bring him a delight which transcended any material profit. Involuntarily, productivity too would be at its best. But, the total quantity of commodities so produced could only satisfy a small population.

13 Large Scale Production

But, even the sum total of the hidden springs in all the few people in which they are functioning cannot produce sufficiently to maintain a team in population such as we have today to meet the demands of increasing population pressure, production has to be done by large teams of persons of different orders of capacity. In such large scale production, hardly any individual working in some minute sector is even dowered with the joy of seeing the whole slowly rising to its wholeness. Theoretically it may be known to the men higher in the intellectual scale that productivity increases with the flow of commodities, that higher productivity increases the purchasing power of the consumer and that it raises the standard of living. But this economic chain is unable to provide the motive for increasing productivity. Even if it does, increase of productivity cannot be achieved except by the continuous forging of newer and newer techniques in every sector of production. The rate of increase of the literature — particularly periodical literature on these ever-developing techniques is so great that self-information is no longer possible for any. There has to be division of labour at this point. Culling the information from the thousands of periodicals in which they are scattered, throwing them in a helpful filiatory sequence and serving them to the industrial thinkers, designers and engineers on demand and preferably even in anticipation has to be taken care of by the library profession. The branch of the profession in charge of this work is called that of documentalist. His work is called the documentation. It is this necessity for a division of labour between the documentalist and the others in industrial enterprises that accounts for the place being given now to documentation in productivity drive.

14 Documentation

Documentation is the prompt well-featured, exhaustive, and pin-pointed service of every nascent micro-thought in the wave-front of knowledge, appearing as memoranda, reports, and articles in periodicals, which are relevant to the work on hand at the moment, of every person engaged in the production of any commodity beginning with the designing specialist and ending with the person packing the commodity artistically for the market. Nearly a million items of nascent micro-thought appear each year, spread over thousands of periodicals. A few hundreds of these items may be relevant to any situation, some directly and some indirectly. These items will have to be culled from a vast range of post-publications, some of which may even be quite unexpected ones. If documentation service does not feed every intellectual worker, there will be unwanted and unintended duplication of effort. This would mean deviation from maximal efficiency in respect of the most precious factor of production, viz. the human mind. This would certainly amount to the lowering of productivity. Thus, documentation forms an essential agency in productivity drive. And documentation lies within the area of library profession.

15 Dissemination

Establishment of a new technique by the creative and intellectual workers leads invariably to a new know-how. Expeditious familiarisation of the foremen, the technicians, and the labour with the new know-how is an essential part of productivity drive. Apart from the training given by technical people, aggressive but pleasurable reference service with audio-visual aids, and with books written to their level with a flair is also necessary. This service also lies within the area of library profession.

16 Area of Dissemination

At all times, dissemination service to all pedestrians including the men at the bench will have to be done. But, there is another transitory area connected with this service. It is the promotion of the production of suitable table audio-visual aids and books written with flair in a style and with just the details which can attract and retain the attention of the persons on whom they are turned.

17 Area of Documentation

On the other hand, the entire area of documentation is permanent. Its occupation and cultivation should be a continuing process. This may be illustrated from the sector of the materials group within the last ten years, nearly half the commodities in the chemical, textile, and metal range have come to involve materials developed since World War II. As this field of research is thus continuous, documentation of the nascent literature on the materials group also must be continuous. Since World War I a similar continuous stream of research is gushing out in respect of machinery, and processes. In one of the industrial houses I visited in the United States, they were still investigating the commercial potentialities of titanium, the ores for which were being received from our own country. A few hundreds of scientists were engaged in research on this metal, to find out possible commodities of commercial value that could be got out of it. At that time, there was not much literary warrant on this subject. Most of the literature was being produced in that very house. In spite of it, they found that there was much of wastage and duplication of unintended investigation. This delayed productivity. Ultimately, they heard that the techniques of Colon Classification and Chain Procedure invented in India would give more efficient documentation service. Their librarian was then sent to me for a few weeks. Again, when I went to teach in the library schools of Great Britain in December last, the British Institute of Management used my services as consultant in documentation technique. Some of the engineering firms also felt the need for better documentation in the sector of material goods and contacted me for advice. Let us now trace the areas for documentation in the various sectors of production mentioned in Section 12.

2 MATERIALS AND MACHINERY

To make the materials group yield the greatest productivity, continuous research is essential. Moreover, it should not be research-in-parallel, implying as it does independent investigation of the same field by several persons without any co-ordination. On the other hand, it must be a research-in-series. The achievement in every step in research in any sector of knowledge should be ploughed back constantly into the field of research in order to carry the research further without any wastage whatever. This research-in-series must be organised on a national basis certainly, and even on an international basis whenever political barriers do not prevent it. Such an organisation of research is now moving in a spiral of very short period. As the movement is basically cyclic, we can begin its description at any point of the spiral. Here is a description of the chief stages:-

1 Research in pure science — Fundamental Research;

2 Application of the findings of fundamental research to a specific utility-field — Applied Research;

3 Establishment of new process of production of an already known commodity or of a new commodity — Pilot Project;

4 Design and production of new machinery;

5 Design and production of new material;

6 Design and production of new product;

7 Using the new product — either as intermediate or ultimate commodities;

8 New problem created by new developments in technology or public demand; and

9 Fundamental research again to solve the new problems, and repetition of the cycle ad infinitum.

The above is presented schematically in the accompanying diagram. In the past the period of the cycle was large — extending over centuries. But social urge caused by the population pressure is progressively shortening its period.

21 Regions for Documentation

Each of the eight sectors in the above spiral provides regions for intensive documentation work on the nascent thought getting created and embodied from week to week, and for right to-the-point documentation service to the designers, materials engineers, and the promotion and marketing team. It also calls for prompt precise service to the top management on the financial, personnel, and cost-accountants aspects of the enterprise., But the industrial production in our country is still lingering in the copying phase. We have to copy only what is not kept confidential in the industrially advanced countries — what is of yesterday rather than of today. With such out-moded copy, productivity is naturally poor nor is there any recognition of documentation as an aid to productivity. But to increase the productivity, we must enter the creative phase. To conserve the creative potential of our country, documentation is essential. Therefore, the productivity of the National Productivity Council itself cannot be high, unless it has a documentalist within it to share its task with its other members.

3 JUNCTION OF MATERIALS, MACHINERY AND MEN

Much wastage and lowering of productivity can occur at the stage in which the material, the machinery, and men are brought together at the crucial point of production. The wastage at this junction-point has been overlooked for long. But in recent years, considerable research has been taken on hand. It covers production engineering including location, the lay-out as a whole and of the machinery, transport, and work-table, the flow of materials and their work, and the whole range of industrial operations and the location of the tools and jigs needed for them. This research has brought out new calculuses such as linear programmic and operational analysis. Quality control also calls for research. There should be no wastage either in the research or in the exploitation of the results of research, if productivity is to be at its best. This means that documentation should be at its best.

4 HUMAN FACTOR

Productivity can be advanced or retarded a good deal by the human element.

41 Physical Sheaths

In the first place, productivity drive requires that the physical sheath of the workers should be provided with the best possible environments, comfort, and convenience. For this purpose, considerable research has to be made continuously in work study including motion-study, fatigue study, time study, delay study, and therblig study; and in working conditions including material handling, furniture, vibration, noise, atmospheric conditions, safety arrangements, etc. Hereto documentation is essential both to conserve research potential and to implement the latest results of research promptly and fully.

42 Conational Sheaths

Even when the best of physical environment is provided for the body, productivity may not go up proportionately. That may be because the persons concerned do not put forth their full will into their work. In our country today this is the trouble from the top-man to the last. This is an inheritance of the immediate past of political subordination and neglect of the education of the whirl in schools and universities. Apart from this general cause, the withdrawal of the will may also be due to tension in the emotional plane or failure in forethought in the top-management.

43 Emotional Tension

Emotional tension is often traceable to inequality in distribution (in the economic sense] To get over this obstruction to the willing exercise of Will in production work, considerable research is now being made in the methods of incentive.

This research also calls for continuous documentation work. In this region, research admits of of being done as an international project. The coverage of documentation has therefore to be world-wide. Dissemination service too is necessary in this region, in order to keep the army of workers convinced of the more equitable distribution brought about by new forms of wage determination.

44 Forethought in Top-Management

At intervals, major technological changes take place calling for a whole-sale replacement and re-distribution of workers, and for social legislation of a new kind. Such a major change occurred, for example, more than a century ago. The social and economic inequities, which stepped in and persisted for a long time, have been pictured for example in the Cry of the children by Elizabeth Barrat Browne. The motive for correcting these ills was not productivity in those days but merely humanitarianism. But today the very productivity of economic enterprise will call for their corrections. To take an example, automation, which is designed primarily to increase productivity, is itself threatening a disturbance which will retard productivity. The State and the collective top-management should have the forethought to work out plans to quench this disturbance. Otherwise the will of the workers, who are now armed with various forms of collective action, may throw everything into confusion. Here the problem is perhaps on too vast a scale for mere flair alone to find a solution. Systematic research in many regions of economics and sociology will be necessary to usher in such revolutionary changes in the technology of production without obstruction to better productivity. In this region documentation will necessarily require world coverage.

5 STANDARDIZATION AND SIMPLIFICATION

Another important factor essential for increasing productivity is that of standardization and simplification. They have to be in respect of production, materials, services, processes, receptacles, carriers, and even routine intellectual operations. One of the secrets of the pre-war productivity of Germany and of its re-capturing its leading position in productivity within ten years of World War II is standardization to the finish. Perhaps both in Japan and in United States simplification is increasing productivity. This is now being realised all the world over. We have established our own Indian Standards Institution. Practically every country has now a National Standards Body, co-ordinating the standardization in every sphere of industrial work. But we have not yet done it fully. There are separate standards committees for different sectors of work in different states, moving in their old nineteenth century grooves. This must be set right. Apart from this, there is a continuous stream of documents coming from the standards bodies and the patent offices of many countries. They should all be organised and exploited expeditiously. This too calls for documentation work of an intensive kind.

6 TECHNIQUE OF DOCUMENTATION

Documentation depends for its efficiency on depth classification. But this has not yet developed sufficiently to face standards and patent literature. However, the techniques of facet analysis, zone analysis, and chain procedure invented in India during the last thirty years have laid the road to make depth classification efficient enough for documentation. These techniques are now being exploited in other countries. This is evident from the following extract from the volume IIB of the Communications of the International Congress of Librarians and Documentation Centres held in Brussels in September 1955:- "The truly faceted classification has been developed in (the) Colon Classification. It is extremely simple and flexible to use and can deal with complex subject without strain and with a surprisingly simple notations. The British Classification Research Institute accepted that 'Facet Analysis' must be the basis of a classification scheme able to meet modern requirements". The same International Conference resolved in favour of an International Study Conference of the Indian Techniques. This study conference, held in May 1957 marked culmination of a series of annual reports made from India, to which the International Federation for Documentation had entrusted the work of its Committee on the general theory of classification as soon as it was formed in 1950. Our Government accepted the invitation of the Study Conference that I should be sent out as India's delegate to open the Conference I have outlined in my opening address the diverse problems in documentation which need research. Now that we have realised the need for increasing productivity, I am keen that research in this important tool of productivity should not totally go out of the hands of India.

7 FACILITIES IN INDIA

As early as 1948, as Chairman of the Documentation Committee of the Indian Standards Institution, I put up a proposal to our Government for documentation service to the industries and research organisations, to be done at the national level. In 1950 it was possible to secure the help of UNESCO for three years. The INSDOC (Indian National Scientific Documentation Centre) has now been functioning since 1954. It is publishing a fortnightly Documentation list and it is also now taking up the publication of a monthly documentation list of all the scientific and industrial out-put in the learned periodicals in South-East Asia. This INSDOC should be developed so as to function in full measure to aid productivity in India. It can also function as a laboratory for the conduct of research in documentation problems, as and when they arise in the course of the development of our diverse industries. At present, however, the INSDOC is not fully exploited. As the Chairman of its technical committee, I feel disappointed that our documentation list still continues to be only in the pilot project level. This is due to lack of adequate support in the form of men and money and lack of adequate patronage and utilisation by the industries and the research institutions in the country.

8 REGIONS FOR PRODUCTIVITY DRIVE

We may set forth here the regions in industrial production involved in productivity. To secure over-all productivity, there should be a harmonious incidence of productivity in each of the regions. Documentation will be needed too in each of the regions.

1 Co-ordinated planning of the industrial development of the country as a whole. The dovetailing of the different phases of production of different commodities and services, mining, transport, market study, and the shaping of public finance.

2 Design of products, whether ultimate or intermediate commodities, machinery, tools, jigs, apparatus, and artificial raw materials.

3 Location of the different industries, lay-out of factories, quality control, diverse industrial operations, and other elements of production engineering.

4 Market-research, both inland and overseas.

5 Problems of personnel management.

6 Capital and its associated problems in the public sector as well as in private sector.

7 Problems of sources of fuel and power.

8 Implementation of the finds of research in each of these regions.

9 Documentation to conserve the manpower engaged in thinking out the various problems and implementing the results, and aggressive reference service to the rank and file in the industry.

SOUTH ASIA SECTION OF THE LIBRARY OF CONGRESS

T. N. RAJAN

Traces the history of the South Asia Section of the Library of Congress. Describes its collections. Points out its relation to the other Sections of the Library. Describes the processing, the reference service, the bibliographical and the extension service of the Section.

0 INTRODUCTION

The facilities available in the United States for the study of the countries of South Asia are not generally known. It may, therefore, be desirable to describe them, in view of the importance of an intelligent, well-rounded knowledge of the cultures and civilizations of South Asia. Among the many institutions of the United States possessing extensive resources for South Asia studies, the foremost is the Library of Congress, its National Central Library. Established in 1800, primarily to serve the needs of the members of the Congress, it has now become one of the largest libraries in the world. In the words of Dr S R Ranganathan, "This is one library of its kind which has put forth the greatest number of activities possible in a National Central Library". Through its various special divisions, the Library offers services to different kinds of readers.

01 Division of Orientalia

The Division of Orientalia is one of the special divisions. It deals with the countries of Asia and North Africa. It was created for the purpose of furthering Oriental studies. This Division was established in 1928, chiefly to bring the Chinese collection into active use. This had grown tremendously, since the second half of the nineteenth century. However, it rapidly expanded in the next quarter of a century, leading to the formation of four other sections dealing with the other countries of the Orient.

02 South Asia Section

The South Asia Section is one of the five sections of the Orientalia Division. It comprises two sub-sections, one of them deals with the countries of South Asia proper - viz India, Pakistan, Ceylon, Nepal, Sikkim, Bhutan and Tibet. The other deals with the countries of Southeast Asia - viz Burma, Thailand, Malaya, Viet Nam, Laos, Cambodia, Indonesia and Philippines. This article is concerned only with a description of the collections, functions, and activities of the first-mentioned subsection.

SOUTH ASIA SECTION OF THE LIBRARY OF CONGRESS

The South Asia Section as a whole, is an outgrowth of a special project for the development of Indic studies under a grant from the Carnegie Corporation, secured through the American Council of Learned Societies in 1938. In view of the increasing need for library service on India, this project was incorporated into the Library in 1942, under the designation 'Indic Section'. In 1948, its activities were extended to cover the countries of Southeast Asia also. As a result, the name of the Section was changed to the more appropriate name 'South Asia Section'.

1 COLLECTIONS

11 India

The first collection of importance to be acquired by the Library and eventually to form part of the South Asia Section was the entire library of Albrecht Weber, the great German indologist. It consisted of 3, 375 books and manuscripts, mostly editions of Sanskrit texts, philological works, and volumes treating of Indian philosophy and religion. This was purchased in the year 1904. The majority of these volumes are meticulously annotated in the margins, in the learned professor's own hand. The seven volumes of the St Petersburg lexicon are inter-paginated with his own corrections and additions to entries. An earlier acquisition of note was a gift of forty volumes in Bengali, having Bengali imprints presented by the Board of Examiners of the College of Fort William. This collection includes historical and philosophical treatises, story literature and Bengali versions of the Mahabharata and the Ramayana.

12 Jaina Literature

In course of time, the Library purchased and acquired about 6, 000 volumes in Sanskrit, Prakrit and Pali. These cover the entire range of Vedic, Post-Vedic, Buddhist, and Jaina literature. In more recent years, the collection of Jaina literature has been enriched by numerous gifts from Jaina monks. Prominent among them is Muni Sri Jambuvijayaji. He has appraised his colleagues and the members of the Jaina laity, of the Library's interest in the religious works of this Indian sect. In 1955, a gift of the entire Jaina Siddhanta was made by Sri Javeri.

13 Modern Indian Languages

The growing importance of the individual modern languages of India led to the acquisition of a representative collection of books in these languages. The immensity of this work is reflected in the Library's delegating to the University of Pennsylvania the responsibility of acquiring and maintaining the adequate collection of books in the Dravidian languages and in Sinhalese. The Library has taken upon itself the responsibility of building up the collection in the Indo-Aryan languages. The following statistical data may give an idea of the collections.

Assamese	10
Bengali	1, 685
Gujarati	1, 051
Hindi	2, 383
Kannada	146
Marathi	1, 322
Punjabi	121
Sanskrit	2, 156
Tamil	374
Telugu	85
Urdu	1, 827
Nepalese	610
Sinhalese	174
Tibetan	951
Other languages	111
Total	13, 006

The books in the Dravidian languages will ultimately be transferred to the University of Pennsylvania.

14 English Books

The publications in English have formed a major proportion of the books being printed in India. Therefore, the volumes in English, and to a lesser extent other western languages, are far more numerous than the relatively small collections in the Indian languages. The books in the western languages bearing on South Asia are said to number more than four lakhs. They are dispersed in the Library's two buildings, according to their subjects. The Library attempts to acquire current and old publications to serve research and scholarly interest, with particular attention to the fields of fine arts, literature, linguistics, religion, philosophy, description and travel, history, government and politics, economics, sociology, and anthropology. Works on medicine, agriculture, etc. fall under the purview of other government libraries - such as the National Library of Medicine and the Department of Agriculture Library.

15 Government Publications

The Library endeavours to keep track of government publications by its exchange relation with most of the government departments, both Central and State. It is particularly strong in gazetteers, Central and State gazettes, census materials, annual administration reports of the various ministries. One of the important acquisitions is a complete set of the Hyderabad State gazette in Urdu from its very inception until its termination. About half of them have already been bound and the rest are currently under preparation for binding. This is certainly a mine of information for those who engage themselves in the task of writing the history of Hyderabad.

16 Periodical Publications

As periodicals and newspapers form important source materials, the Library has built up a representative collection of these in major languages of India. It includes the Dravidian languages also. Until 1954, these newspapers were preserved in the form of bound volumes. However, since that year, they are kept in microfilm form because of considerations of space and also possibly as the best means of preservation. A detailed and complete record on cards is kept for all these periodicals and newspapers. Of course, the Library's holdings of periodical literature in English pertaining to this area are quite extensive. But unfortunately there exist gaps. However, the Library is devising means to fill in the gaps and make the sets complete.

2 SUPPLEMENTS

Though the Division has no jurisdiction over collections of law, manuscripts and maps, it is worthwhile to mention the Library's holdings in respect of these.

21 Law

The Law Library contains a comprehensive collection of digests, official acts, serials and other monographic materials. As Dr S R Ranganathan says, "I found in its legal section a very nearly exhaustive collection of the legal publications of India. There is no place in India where they can all be found".

22 Maps

The Map Division has most of the series of maps issued by the Survey of India. The maps in the Indian languages are not many. But there is a complete set of district maps in Bengali for pre-partition Bengal. The prompt acquisition of the atlas recently brough out by the Ministry of Education and Scientific Research is worth mentioning here.

23 Manuscripts

Several hundreds of manuscripts are preserved in the Manuscript Division, These are mostly texts of Dharmasastra. Of special value and interest among them are three manuscripts: The Kalpasutra, in old Prakrit, 1452 A D; the Candanarajaricopai in Old Gujarati and Prakrit, 1744 A D; and the Salibhadracarita, also in Old Gujarati, 1766 A D. There are also 400 transcripts of Indic manuscripts by the indologist Albrecht Weber. Originally, these formed part of his private library. The following are a few other important items: "Vyavasthasara-samgraha by Ramagovinda; Daya- sara by Govindananda; Asauca-samksepa by Madhusuddanavacaspati; Krsi-paddhati by Kapalabhrt; Acara-darsa by Sridattopadhyaya; Tithi-tattva by Raghunandana (dated A D 1628); Rudra-kalasa-snanavidhi by Narayanabhatta, son of Ramesvarabhatta; Ramayana with Commentary by Mahesvaratirtha; Kartivirya-pancanga from Uddamaresvara-tantra; and Yasasiksa".

There are microfilm copies of more than 6, 000 pages of rare Indian manuscripts in Sanskrit and some of its dialects. Among them are important ritualistic texts, rare Jaina manuscripts, a rare manuscript of the Vetalapancavimsati and old Tantric texts.

24 Motion-Picture

The Library possesses motion-pictures of some of the very old Vedic rituals of the Malabar Coast. These include a marriage ceremony and a tonsure ceremony, according to the Asvalayana-grhyasutra.

25 Music

Here is something of interest to the lovers of music in India. The Library has taken ar active interest in collecting an adequate and comprehensive collection of books on Indian music. To this end, several years ago, the Library purchased a collection of more than 1, 000 RCA Victor recordings in all the principal languages of India. This consists of both Hindustani Classical and South Indian Karnatic music, vocal and instrumental, accompaniments to the traditional dances and folk and religious music. The records are currently under the jurisdiction of the South Asia Section. It is planned to transfer them more appropriately to the Music Division, already in charge of the books on Indian music.

3 PAKISTAN, CEYLON, NEPAL, SIKKIM AND BHUTAN

The collection dealing specially with Pakistan, Ceylon, Nepal, Sikkim and Bhutan ought not to be passed over even in this cursory account. For they are very representative of the publications on these countries and decidedly adequate to meet the needs of scholars and students of these areas. The Pakistani language collection is, however, somewhat one-sided. For no books in Bengali, published in East Pakistan, have so far been acquired. But this gap is soon to be filled as the Library is keenly aware of it. There are about seven hundred books in the Nepali Language under the special custody of the South Asia Section. These comprehend most of the important literary output of Nepal. They have been used on several occasions by students seeking to throw some light on this country which has received comparatively little attention so far.

4 TIBET

The Tibetan Collection in the Library is under the custody of the South Asia Section because of its religious affiliation to this area. The Library's holdings of Tibetan works are notably rich and extensive. There are three different recensions of the Lamaist Canon, viz the Derge Kanjur, the Narthung Tanjur, and the Choni Kanjur and Tanjur. The later recensions is particularly valuable in view of the fact that no other complete set is known to exist anywhere. For the collection deposited in the Toyo Bunko (Oriental Library, Tokyo) consists only of the Kanjur, or the first portion. The principal reason for the scarcity of this particular recension of the Tibetan sacred books is well known. These were printed in the Choni Monastery. Some thirty years ago this monastery was complelетely destroyed by a fire. Consequently, all the thousands of wooden blocks, painstakingly carved by the patient labour of many monks, went up in flames. The Choni Kanjur and Tanjur were purchased for the Library by Dr Joseph Rock in 1928 at the monastery itself. There, a new impression was struck off in his very presence. The account telling of the long journey of this vast and valuable collection across the immense territory of China to Shanghai, where the three hundred and nine fascicules were encased in wooden boards, is a fascinating and almost an unbelievable saga. At one point, the entire collection was very nearly destroyed in the city of Sainfu, where it was deposited in the post office, awaiting its further shipment. At that time, the city lay under siege and several crates containing the Tibetan books were torn open. But by a strange miracle, as it were, the contents were not molested, though one of them was thrown into the Yangste River and was partially damaged. In any case, the precious cargo arrived in the Library of Congress. Here it is serving the needs of many Tibetologists throughout the world. Recently the catalogue of the Tanjur portion was completed by Dr Richard Meiscsahl of Bonn, Germany. He carried out his task from a negative microfilm copy. The Kanjur has been catalogued by the Toyo Bunko. It is hoped that within a reasonably near future these two catalogues will be published and made available to interested scholars everywhere. The remainder of the Tibetan Canon consists of a large number of separate religious texts almost printed from wooden blocks. There are a few manuscripts also.

5 FUNCTIONS AND ACTIVITIES

51 Initiation of Readers

Indeed the vast majority of demands are in the nature of personal visits by readers, prefering to seek out the information themselves. The staff of the South Asia Section is ever ready to offer its services to show these readers the facilities of the Library and how they may be used. Readers are given much help by way of suggestion and advice as to how they may have to proceed. In general, the first steps in their pursuit of research are lighted up for them. At this point, it may be noted that the Orientalia Division as a whole is staffed with scholars, intimately familiar with all the aspects of the cultures and civilizations of the different countries represented. They are also well versed in library techniques and procedures. Letters written in most of the Oriental languages are dealt with, with care and meticulousness. The staff of the Orientalia Division are competent for this work. They have a good knowledge of the countries they seek to interpret and explain to the public.

52 Reference Service

Of many activities of this Section, the most important is probably its reference service. Besides the ever-increasing number of readers frequenting the Library and seeking to use its services, answering letters of inquiry form a considerable portion of the reference service. Every possible care is taken to answer fully and accurately all requests for information. One or two examples of reference questions may be cited by reason of their intrinsic interest. A letter was received from a scholar specialising in folklore. He wanted to know of any possible Indian analogues to the Cinderalla myth. It was found that this famous story has a definite parallel in the story of Sudevi Bai as handed down in oral traditions in the Deccan. An outline of the story was dispatched to the enquirer. Another request of less scholarly origin sought a selection of names for two dogs of Tibetan breed purchased in Nepal. Appropriately enough, their owners wanted to give these dogs genuine Tibetan names. Being unfamiliar with the Tibetan names for dogs, they wrote to the Library for a list of names, commonly applied t Tibet. This was readily furnished t services of a friend of a staff memb spent many years in Tibet and had c long list of Tibetan canine names.

53 Bibliographical Servi

Many bibliographies have been pr the Section either on request from r in anticipation of demand. A regula bibliography of special interest to st scholars alike, is the Southern Asia list. This is a monthly publication. all the monographs in western langu lished within the last ten years and currently by the Library. It include select titles in some of the language area as well as articles culled from list of more than two hundred curre cals. About fifty libraries in the Un are cooperating in various degrees i ject by sending cards for titles found collection, but lacking in the Librar ress. Thus, the list serves as a ki Union Catalogue on Southern Asia, t course on a small scale. The list w in January 1952. It is thus reaching of the seventh year of publication. I financed by a number of well-known pic foundations.

54 Extension Service

The growing necessity for buildin lections in the various libraries in t States, fully adequate for the purpos search and advanced study on the co South and Southeast Asia, led to the in November 1957 of a Conference o Library Resources on Southern Asia Asia Section was responsible for lay foundations for this Conference. It the Library of Congress. The discu based on eight "working papers" sett the salient details involved in a num basic problems relating to the librar on this area. Some of the topics out these "working papers" were the acq and processing of publications, the l primary source materials in the Uni bibliographical aids, cooperation in ment and cataloguing, etc. As a result of this important Conference, a number of basic projects, recommended and accorded enthusiastic support, may be realised in the near future. The projects are not inconsiderable in number. They are currently under study by the National Committee responsible for the implementation of the decisions taken at the Conference.

55 Exhibitions

An interesting and important programme of the Orientalia Division is the setting out of a series of exhibitions relating to the cultures and civilizations of the various countries of the Orient. These exhibitions occupy five display-cases. They are changed every two months. Among the many, put up by the South Asia Section, are two particularly notable ones. One demonstrated the migration of Panchatantra fables. The other was on the history and development of Brahmi script. These exhibitions are very popular and educative.

6 DEVELOPMENT OF THE COLLECTION

One of the primary activities of the South Asia Section is its responsibility for the continued improvement of the collections. Book lists and catalogues of publishers and booksellers, bibliographies, and other sources of information on book production are carefully persued and checked against the holdings of the Library. All the missing items of sufficient importance are recommended for purchase. Gifts from individuals and private organizations, constitute another important means of augmenting the Library's collections. Exchange agreements with governments and private institutions, are another means of enrichment. "Acquisition tours" undertaken by the members of the Staff from time to time to establish closer contact with book dealers, publishers, authors and governments have paid dividends toward the enhancement of the Library's collections. Responsible and reputable book dealers in the various countries of Southern Asia have been entrusted with the task of supplying all the worthwhile current publications in the country. This has led to a steady flow of books throughout the year.

7 PROCESSING

Since the volume of publications receiv by the Library is very considerable, caref organization and proper technical knowledg are required for the cataloguing of them. work is carried out by the Processing Depa ment, though the books remain under the s cial custody of the South Asia Section. Unf tunately there is a fairly large backlog of u catalogued books at present. But it is hop that this situation will soon be remedied.

8 INTERNATIONAL UNDERSTANDING

It can hardly be denied that a proper und standing between nations must be based upo the understanding of their cultures and civi tions. The establishment of the Orientalia vision in the Library of Congress will, cer tainly, lead towards this ultimate end. Ma not have in India such specialised units in t larger libraries and in those likely to be cr ted in the future, for a better and proper un standing of the peoples of the other countri of the world?

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